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THE
Philadelphia Journal
OF THE
MEDICAL AND PHYSICAL
SCIENCES.

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ART. I. *On the forces by which the Blood is circulated.* By
ISAAC HAYS, M. D.

[Lecture delivered to the Academy of Natural Sciences, 1823.]

SCIENCE can boast of no discovery of more importance, or which has produced a more beneficial revolution in medicine than that of the illustrious HARVEY. The circulation of the blood is so generally known at the present day, the proofs on which it rests are so obvious and familiar to us, that we are struck with astonishment that it should have so long escaped observation. Mankind, however, from the beginning of the world, were accustomed to observe the fall of an apple, but it required the sublime genius of a Newton to deduce from that simple incident, the theory of universal gravitation; and notwithstanding the many approaches which physiologists made to the discovery of the circulation, it was not until so late as the seventeenth century, that this important fact was ascertained and promulgated. The ancients were entirely ignorant of this fact, and notwithstanding all that has been said to the contrary, the works of HIPPOCRATES afford abundant proof that he was wholly unacquainted with that phe-

nomena. He supposed that the blood went from the internal parts to the surface, and compared its motion to the ebbing and flowing of the sea. He assigned the origin of the veins to the liver, and supposed that there were two opposite motions in the arteries by which their pulsations are produced.

ARISTOTLE was even more ignorant of this phenomenon; the heart, says he, is the source of the blood, the veins arise from it, the blood passes from the heart into the veins, and does not again return to it.

ERASISTRATUS and all the Alexandrian anatomists maintained that the arteries held no blood, but were filled with air; even HEROPHILUS, the most celebrated anatomist of antiquity, was no better informed on this subject.

Such were the opinions entertained until the time of GALEN. This great genius, disdaining to follow blindly the steps of his predecessors, endeavoured to discover the truth by experiments and observations on the structure of the body. He thus ascertained the use of the valves at the two orifices of the ventricles, that the arteries contained blood, and that they were filled by the action of the heart; but his discoveries rested here.

It was not to be expected, that in the darkness and ignorance in which the human mind languished, after the time of Galen, that the secret of the circulation would be discovered. It was not, indeed, until the sixteenth century, that a single ray of light was thrown upon this subject. SERVETUS, whose name cannot be mentioned without exciting feelings of compassion for his unmerited and barbarous treatment, as well as indignation at the unrelenting bigotry of his implacable judge and cruel persecutor, at an early age made considerable advances in the sciences, and was the first to indicate the passage of the blood through the lungs, but did not live to confirm or extend his discovery; he was seized and condemned to the flames, for expressing his disbelief in some theological doctrine, and thus perished, says Portal, one of the finest and most enlightened geniuses of Europe. He had, however, immortalized himself by a discovery which had baffled the efforts of the greatest

philosophers of antiquity, and it remained but to follow the path which he had indicated. This was done by REALDUS COLUMBUS, but still more successfully by ARANTIUS and CECALPINUS, who described very clearly the passage of the blood through the lungs, which they confirmed by several arguments drawn from the structure of the parts, and particularly from the position and mechanism of the valves.

The general circulation of the blood, was, however, not even suspected. The advances made by these anatomists, do not appear to have stimulated others to pursue the path of discovery. Men's minds were still enslaved by errors, which having prevailed for so many centuries, had acquired the sanction which time and authority bestow on opinions, however absurd.

When the illustrious Harvey had the courage to break the fetters which authority had imposed upon reason, and to enter into an examination of opinions which had been long consecrated as infallible truths, the result of his investigation was the discovery of the circulation of the blood—a discovery which he not only made but perfected. He was not contented with demonstrating the circulation in some parts only—he traced that of every part. His work embraces the subject in its whole extent, and presents it to the mind in so perfect and finished a form, as scarcely to admit a single addition or improvement.

Perfect as was the discovery of Harvey, so far at least as respects the route of the circulation, he failed in ascertaining the forces by which it was effected. The labours of succeeding physiologists have somewhat elucidated, but have not fully solved this problem. They have proved the insufficiency of the agent to which was ascribed this effect, but the moving powers of the circulation, to which I wish particularly to call the attention of the reader, have never yet been very satisfactorily demonstrated.

The blood of the left auricle is thrown into the left ventricle by the contraction of its muscular fibres: this is very evident and satisfactory. The blood of the left ventricle is thrown into the arteries by the contraction of its muscular fibres and

produces that pulsation which is familiar to every one. It was the opinion of Harvey, and of many succeeding physiologists, that the impulse received by the blood from the left ventricle was sufficient to move this fluid not only through the larger arteries, but also through the capillaries or minute ramifications, and even through the veins into the right auricle, so that the contraction of the left ventricle is, according to them, the cause of the circulation of the blood in its long course from the left ventricle to right auricle.

Of the force with which the left ventricle acts upon the blood sent by it into the arteries we are entirely ignorant, notwithstanding the numerous calculations by which this physiological problem has been attempted to be solved. Indeed all such attempts are futile, as is demonstrated by the very different results of numerous calculators; while one has estimated it at only eight ounces, another has asserted it to be equal to one hundred and eighty thousand pounds. But whatever may be the power of the heart, it has been "incontestibly proved," says Bichat, "that when the blood has arrived in the general capillary system, it is absolutely beyond the influence of the heart, still less has the heart any influence in the motion of the blood through the venous system." The phenomena of blushing, of inflammation, of hæmorrhage, want of pulsation in this system, show that the action of these vessels is independent of that of the heart.

It appears then that the blood is thrown by the power of the left ventricle through the larger arteries and their ramifications into the capillary system, where the impulse received from the heart is nearly or entirely lost.

Whether or not the motion of the blood through the arteries is influenced by any action of these vessels is a point by no means settled. It was the opinion of Bichat that the heart is the only power that puts in motion the blood in the arteries, and that these vessels are entirely passive. It is not without regret that I am obliged to differ in opinion from this distinguished anatomist, but it appears to me to be most clearly established by a variety of proofs, that the blood is not circulated by the impulse received from the heart alone,

but that its progress is assisted and maintained by a contractile power in the arteries.

Baron HALLER, not being able to discover nerves going to the middle coat of the arteries, denied its muscularity; and from being unable to excite their irritability by mechanical or chemical stimuli, believed that no inherent contractile power resided in them, that their action depended upon elasticity, and not upon their muscularity. That this is incorrect is proved by the fact that the arteries after death are always found empty and in a relaxed state, which should not be the case if their contraction depended entirely upon their elasticity; for if it did, they should when empty, always be in a state of contraction.

That the arteries possess a local and independent action, is evident in the erection of the penis from venereal orgasm; in the excited and turgid state of the female parts in coition, and in those of the lower animals when in season; in the increased activity of the vessels of the uterus during pregnancy; in the augmented vascularity of the testicles of the lower animals during the season of copulation; in the act of blushing from affections of the mind; in the secretion of blood; in the growth of tumours; in the evolution of the female breasts at puberty.

It is further proved in certain diseases; thus in several diseases we see an increased determination of blood to a particular organ, as to the head in apoplexy; in paralysis the pulsation is stronger in the healthy than in the paralytic limb; in whitloe, while the pulsation at the wrist of the affected hand is often one hundred or one hundred and twenty, that of the other is only seventy or eighty.

When a limb is torn off by any sudden force, the artery is frequently so deadened that no bleeding follows. Now if the blood was circulated by the heart alone this could not happen, but the patient would bleed to death. It is also rendered probable by analogy; in those monsters which have no heart, and in fishes where there is none but for the pulmonary circulation, the blood must be moved through the body by the impulse of the arterial system alone.

It would therefore seem probable, that the arteries possessed the power of contractility to a certain extent, and that the blood sent to the capillaries by the contraction of the left ventricle, is assisted in its passage by the action of these vessels. Arrived at the capillaries all evidence of the influence of the heart upon the motion of the blood appears lost, and it seems to be propelled by the action of these vessels alone into the veins. With respect to the power by which the blood after having arrived in the veins is propelled to the heart, much difference of opinion exists.

It appears to me that several powers are concerned in the production of this effect.

1st. The action of the capillaries.

2d. Muscular action.

3d. Respiration and atmospheric pressure.

4th. Dilatation of the right auricle.

The *capillary system*, by its insensible contractility, pours continually into the veins a certain quantity of blood. This fluid, added to that already there, communicates a general motion to it; if the veins were as strong as the arteries, and did not dilate when the blood entered them, they would transmit the surplus to the heart, but as the veins are very dilatable, the impulse received from the capillaries would only distend these vessels; indeed the impulse communicated to the blood exceeds so little the resistance which this fluid experiences, that the slightest obstacle deranges this motion, hence the necessity of other powers to assist it.

One of the most important of these is *muscular action*. That this exerts considerable influence is admitted by every physiologist, and is illustrated by the familiar example of venesection. In contracting, the muscles press upon the veins and the blood is pushed towards the heart, its course in a retrograde direction being prevented by valves with which all the veins are furnished. As there are many superficial veins over which muscular contraction can have little influence, and as these anastomose very freely with the deep-seated ones, it might be supposed that the blood would be forced from the deep-seated veins into the superficial ones,

and accordingly we find, that very often in persons engaged in laborious occupations the frequent pressure of the muscles on the deep-seated veins, force the blood into the superficial ones, and produce a varicose state of these vessels. This is remedied by external pressure, by bandages, &c. but nature has not been negligent in providing means to guard against so unpleasant an occurrence.

The chest is a complete cavity, divided into three separate chambers, two of these are occupied by the lungs, and the third by the heart. The only communication with these is either through the trachea into the lungs, or through the veins into the heart. When the ribs are elevated, as in the effort for inspiration, the whole cavity of the chest is enlarged, and the air remaining in it is rarified. The passage through the arteries is prevented by the valves. It is evident that an equilibrium can be restored only in two ways: 1st. by the air rushing through the wind-pipe into the lungs, or 2d. by the blood flowing through the veins into the heart. As the air is constantly pressing on the superficial veins, as soon as the air in the lungs is rarified the atmospheric pressure on the veins will force the blood towards the heart. It cannot be pressed into the deep-seated veins on account of the pressure of the muscles, nor can it retrograde in consequence of its valves, for when pressure is removed from any one part the blood will flow towards that part, as is illustrated in the familiar instance of cupping.

Thus then the air in the lungs, which would be rarified when the ribs are elevated, has its equilibrium restored; 1st. by the air rushing through the trachea into the lungs; 2d. by the flow of the blood through the veins into the heart. That this latter really takes place is confirmed by an experiment of JOHN HUNTER, who remarked that during inspiration the veins readily empty themselves, while in expiration there is a degree of stagnation. Mr. COOPER also observed in performing the operation of tying up the carotid artery, that the jugular vein was distended at every expiration and spread itself over the artery, while it was rapidly emptied during inspiration.

That *muscular* action and *atmospheric influence* are both important moving powers in the circulation of the blood through the veins is further proved, if further proof be necessary, by the fact that in the brain where neither of these forces can act, that organ being enclosed in a complete bony case, another provision is necessary, and this is found in the influence of gravitation. It is well known to every one, that if a person be suspended with his head downwards, the blood will not flow through the veins into the heart, but that the person will die from the accumulation of blood in the brain, the blood sent into it by the arteries not being returned by the veins, except when influenced by the action of gravitation.

So great, however, is the influence which respiration exercises, that while inspiration assists, expiration almost counteracts the effects of gravitation. It has been observed that the rise and fall of the brain, caused by the filling and emptying of its vessels, is synchronous with respiration, not with the action of the heart. The brain rising during expiration, and falling during inspiration.

Dilatation of the heart.—The cavities of the heart are not entirely passive during dilatation. "If you attempt," says RICHERAND, "to check the diastole of the heart, this organ resists the hand which compresses it, and its cavities appear endowed with a power which the GALEN termed *pulsive*; in virtue of which they dilate to receive the blood, and not because they receive it."

In vain some physiologists have contended that the heart is dilated and does not dilate itself, and that this dilatation is absolutely passive, the dilatation of the heart is a true effort, an active movement which manifests itself even in a heart torn from a living animal, although it does not contain any blood.

We are not prepared to show by what property or in what manner the right auricle expands to receive, or rather invite, the flow of blood into its cavity, but that it does expand, and that with some force, even when the flow of blood into it is

interrupted by closing the cavæ, must have been observed by every one who has opened living animals. It is true, that we know not the power by which this is effected—nor of any property of muscles by which they can expand—but it is equally true that we are not acquainted with the courses of the fibres of that muscle; and it is possible that there may be some arrangement, by which the effect we speak of may be produced on their contracting; the contraction of the ventricles we believe also assists the expansion of the auricle; but above all it is *seen* to expand.

Such then are the forces by which the blood is circulated. The action of the right auricle forces the blood into the right ventricle, the contraction of this latter sac propels the blood into the capillary vessels of the lungs, where, aided by the action of these vessels, the contraction of the chest and the dilatation of the left auricle, the blood flows into the left auricle; its contraction throws the blood into the left ventricle, and the contraction of this latter organ propels the blood through the large arteries into the capillaries, here it receives a new impulse from the action of these vessels, and it passes into the veins through which it is urged to the right auricle by the combined effects of the *vis a tergo*, muscular contraction, respiration, atmospheric pressure, gravitation and the dilatation of the right auricle.



ART. II. *Formula for the preparation of Sulphate of Rhubarb, with some remarks on Rhubarb and its preparations.* By
GEORGE W. CARPENTER.

BOIL for half an hour six pounds of coarsely powdered Chinese rhubarb in six gallons of water, acidulated with two and a half fluid ounces of sulphuric acid, strain the decoction, and submit the residue to a second ebullition in a like quantity of acidulated water, strain as before, and submit it again to a third ebullition; unite the three decoctions, and add, by small portions, recently powdered pure lime, constantly stir-

ring it to facilitate its action on the acid decoction. When the decoction has become slightly alkaline it deposits a red flocculent precipitate, and the fluid is changed from a yellow to a crimson colour, the precipitate is then to be separated by passing it through a linen cloth, and dried, after which reduce it to powder, and digest in three gallons of alcohol, at thirty-six degrees, in a water bath, for several hours, at a moderate heat; separate this solution from the calcareous precipitate, and distil off three-fourths of the alcohol, there then remains a strong solution of rhubarbine, to which add as much sulphuric acid as will exactly neutralize it, evaporate this slowly to dryness without having access to atmospheric air, the residuum will be of a brownish-red colour, intermingled with brilliant specks, possessing a slightly pungent styptic taste, soluble in water, and its odour that of the native rhubarb.

This preparation is a concentrated form of that valuable cathartic, separated from the ligneous and mucous portions, and bears a similar relation to the crude substance that Quinine does to the Peruvian Bark.

From the experiments which I made upon several varieties of rhubarb, I found the Chinese to be the most active, and that variety which has been denominated in the market Russian, and which commands double the price of the Chinese, produced about one-half of this principle, and consequently is much less active than the former. This rhubarb, in fact, appears to be nothing more nor less than the English variety, suitable pieces of which have been selected, bored, rasped, &c. in imitation of the Russian, but which wants in degree all the characteristic properties of weight, solidity, compact fracture, and particularly the essential quality of cathartic energy, which are all so strikingly exhibited in the Russian variety, and in corroboration of which Dr. PARIS, in his excellent work the *Pharmacologia*, under the article Rhubarb, states that inferior kinds of Russian, East India, and English rhubarb are artfully dressed up and sold under the name of Turkey, and I am well informed that a number of persons in this town, known by the name of *Russifiers*, gain

a regular livelihood by the art of dressing this article, by boring, rasping, and colouring the inferior kinds, for which they charge at the rate of eighteen pence per pound. I had not an opportunity of making an experiment on the Turkey rhubarb, as I could not procure what accorded with the physical characters of the genuine article. The difference in the medicinal activity of these several varieties must essentially depend upon climate and cultivation, as it is asserted by Dr. REHMAN, that they are the roots of the same species, *Rheum Palmatum*, (although the Dispensatories and Pharmacologia consider them distinct species,) and ascribe the Chinese to be the product of the *Rheum Undulatum*, and the Turkey of the *Rheum Palmatum*: and it is established beyond controversy that climate and cultivation are two of the most powerful agents in modifying the condition of vegetable matter.

On the preparation of Spiced Syrup of Rhubarb.—Paris in his Pharmacologia states, that water at two hundred and twelve degrees takes up twenty-four, and THOMPSON thirty parts in sixty, and by decoction its purgative qualities are destroyed, which decoction is extremely turbid and deposits a copious precipitate on cooling, and will be decomposed by standing a few days, whilst alcohol takes up two and one-seventh from ten parts without the mucous portion, and is perfectly transparent, and will remain unaltered by keeping. Hence as water takes up a larger proportion of mucous and inactive matter, and as decoction destroys its purgative properties, I think a very important alteration might be made in the formula for the preparation of syrup of rhubarb of the shops, by substituting a concentrated spirituous tincture of the rhubarb spices, &c. in place of the aqueous decoction of the same, and to add it near the conclusion of the formation of syrup of proper consistence. The alcohol in this mode cannot be made an objection, as it need not much exceed, if any, the proportion of spirit in the former method to prevent the fermentation of the aqueous decoction, and if these circumstances are correct it certainly will be a more active and eligible preparation, and well deserves the practical investi-

gation of the faculty. This preparation does not enter the works of Paris or Thomson in any shape, but is given by Dr. COXE in the late editions of his standard work, the American Dispensatory, in the manner now prepared, and is very extensively employed in this city, perhaps as much so as any other pharmaceutical compound, and if its activity could be increased it no doubt would be a very desirable object; it now requires a large dose to be effectual, and sometimes frequently to be repeated, insomuch that its use is almost exclusively confined to children, the dose for adults frequently exceeding two ounces, which is certainly objectional, and excludes its use in many cases where, if more active, it would no doubt be extensively employed to advantage.

Extract of Rhubarb.—This preparation, according to the method now pursued, is very feeble; the protracted heat necessary to evaporate the water, and the absorption of oxygen, acts so unfavourably during its formation, that its purgative properties, although not entirely destroyed, are so greatly impaired that its use has become almost abandoned by the profession. By the following process, however, a much more active preparation may be obtained, and where the use of the extract is approved, this will be found to possess the proper characters.

Take of coarsely powdered Chinese rhubarb, ℥j. digest in six pints of alcohol for seven days, and filter; distil off the alcohol in a water bath to the consistence of thin honey, then evaporate to a proper consistence in a water bath saturated with muriate of soda.

By this process much less heat and time is required to evaporate the menstruum, and owing to the alcohol much less oxygen is absorbed, and an extract of much more activity is thus obtained. This mode is certainly more expensive; but if the product is more effectual as a medicine, this small difference should not constitute an objection, as much of the alcohol is saved by distillation, and in the preparation of all medicines, a preference should be given to that method which will render them more active and effectual without regard to expense, unless it be exorbitant and the difference inconsiderable, for where health is implicated, interest should be suspended.

ART. III. *Observations on some alterations of the Digestive Mucous Membrane, which appear to depend on Acute or Chronic Inflammation.* By L. SENN, M. D. Paris.

[Translated for this Journal.]

OF all the lesions whose existence we endeavour to trace in the dead body, there are few, indeed, more important to be well understood, than those of the digestive tube. Causing a thousand different symptoms, according to their intensity, their duration, and the constitution of the individual, they frequently leave behind them such slight traces, as to escape the most attentive observer, who is in very many cases deprived of sufficient data to distinguish the pathological condition of the organs. In fact, notwithstanding the labours of many distinguished pathologists, we are far from having attained the desired object, and although we owe much, in particular for what has been published on this subject by Messrs. CRUVEILHIER, ANDRAL, and LOUIS, many steps remain to be made, many facts to be ascertained, and multiplied researches still absolutely necessary. It is with a wish of abridging somewhat this long toil, that I submit to the public the results obtained by the examination of a great number of bodies; and I shall be happy if they appear worthy of the attention of practitioners, especially of such as are desirous of illustrating the great subjects which have been within a few years brought before the profession by some of our distinguished physiologists.

To advance more securely in the examination of lesions of the digestive canal, it may be well to commence by describing the condition of this tube in the healthy state, by employing the observations of my predecessors as well as my own.

Physiologic Anatomy of the Digestive Mucous Membrane.—We should consider in this membrane three distinct parts:—

1st. The *dermal* or laminous tissue,* situated beneath the

* That is comparing the parietes of the intestinal canal with the common integument of the body; the portion between the mucous and muscular coats, is similar to the dermis or true skin. Θ.

mucous body, separating it from, and reuniting it to, the subjacent muscular tissue.

2d. The *mucous body*, described by many anatomists as the mucous membrane itself, is really but a part of it, just as the cutaneous mucous body is but a portion of the skin. In fact, in many cases we find that the follicles are lodged or buried in the dermis itself, and, when we wish to detach the mucous body, they remain adhering to the dermis with the portion that lines them. Moreover, it is the dermis which imparts consistence to the mucous membrane, and at some points it is so intimately united to the mucous body, that we cannot separate them.

3d. The epidermis or *epithelium* is easily recognised upon the labial and œsophageal mucous membrane; it disappears at other points, and escapes us by its tenuity.

In distinguishing these three parts, it is easier to describe the alterations of the digestive membrane; because it often happens that the *dermis* is thickened and the mucous body thinned at the same points, and we cannot simply say that the membrane is thickened or thinned without risk of producing error. One is obliged to describe things as they are, and it is very convenient to be understood by a single word, and thus to abridge descriptions, always sufficiently unpleasant and arid in themselves.

The buccal membrane, bedewed and humid in the sound state during life, appears perfectly white and without trace of sanguineous capillaries after death. We observe few follicles in it, except towards the base of the tongue, where they are commonly sufficiently voluminous. The mucous tissue is thin upon the lips, the cheek and under surface of the tongue presents throughout a very great degree of consistence, and adheres rather strongly to the *dermis*. The latter appears to be fibrous towards the dental arches, and it is closely united to the subjacent textures.

Here there is no doubt as to the condition of the membrane during life; we see it and can judge of its state, and observe it during inflammation, an advantage we do not possess in relation to other parts. This has induced me to ob-

serve closely cases of inflammation of this and the pharyngeal mucous membrane, both in the living and upon the dead subject, in order to be able to decide by analogy on those cases, which without this aid might be doubtful.

As to the epidermis, we can easily raise it from the lips, but further within it becomes more difficult, even when we plunge the parts into boiling water; we often appear to raise it, while the mucous tissue alone is detached.

In the pharynx, the mucous membrane containing a large quantity of blood vessels, remains very often injected and red after death, although it may not have been the seat of inflammation, and in this it differs essentially from the œsophageal membrane. Its mucous tissue is thicker than the buccal, its appearance more velvet-like, and it is less adherent to the dermis. We should, however, except that part which covers the amygdalæ and lines their cavities; this is so intimately united to the texture of the gland, that we can only detach it by the aid of the scalpel.

The mucous membrane of the œsophagus is of a pearly whiteness, and differs from the other parts of the digestive membrane by its shining, polished, and not velvet-like surface.

In the healthy state we distinguish in it neither follicles nor blood vessels, except towards the cardia, where we almost always observe a considerably vivid injection, and where it is easy to discover the epidermis, which is prolonged upon the gastric mucous membrane to a greater or less degree.

The mucous body forms a little more than the half of the thickness; it is resistant; semi-transparent; is easily detached from the dermis, which is itself feebly united to the muscular tunic.

In the stomach, the mucous membrane is commonly of a dull white, sometimes slightly rose-coloured; its surface is velvet-like, covered by an inconsiderable quantity of thready mucous, somewhat adherent. It is somewhat thicker towards the great extremity or fundus, and at the small curvature; its volume is augmented in approaching the great curvature and the pylorus, and presents at this point a thickness which is

not found at any part of the digestive tube. Before its arrival at the pylorus, it forms irregular wrinkles, very salient when the stomach is folded upon itself.

The mucous body exhibits the same differences in thickness as the membrane itself; it varies about the fifth of a line, but we cannot accurately estimate its volume, on account of the changes produced by the different states of fulness of the stomach: we must content ourselves with ascertaining whether the proportional thickness remains as in health. It may be raised from the dermis with sufficient facility, except near the pylorus; the fragments are larger in proportion to its consistence, and its consistence is in the direct ratio of its thickness. Near the pylorus it becomes adherent to the dermis, and so confounded with it as to be inseparable without the aid of an instrument; we find there also a great number of follicles, while, in the usual condition, we do not perceive any in the other parts of the stomach.

The *dermis* may be raised from the muscular tunic, but much less easily than in the intestines; it offers considerable resistance throughout.

In the duodenum the mucous membrane presents a considerable thickness, especially in its first portion; it also there presents a great number of follicles, which sometimes give it a granulated appearance. It is very rare that we can judge of its natural colour, because it is almost always tinged yellow by the bile, as well as that of the upper part of the jejunum, with which it is insensibly confounded, by losing its thickness and not having so many follicles.

The mucous membrane of the small intestines is perfectly white, and presents a considerable number of nearly transverse wrinkles, which diminish in number and saliency as we approach the inferior extremity of the bowels. Beneath this membrane in the superior portion of the canal, we perceive vessels very much gorged with blood; but if we raise the membrane, we see that it does not show them on its interior. By raising the mucous body, we perceive that it is thicker throughout its superior portion, moderately consistent throughout, and is to be detached with facility from the der-

mis. Here and there we distinguish collections of follicles, forming species of plates, to which BRUNNER has given his name. Irregular and slightly salient in the healthy state, they are especially observable in children from eighteen months to five years of age; before this period it is rare to meet with them. They are also visible in the adult, but it is then more difficult to distinguish the follicles; and it was these which, in my opinion, have been incorrectly taken for cicatrices, and described by Mr. Cruveilhier under the name of figured patches.* It is probable that the degree of development of these follicles, presents the only difference of organization in the digestive mucous membrane at different periods of life, and it is important therefore to observe it.

In relation to the *dermis* of the mucous membrane of the small intestines, it presents nearly the same thickness throughout, and may be detached with the greatest facility from the muscular tunic.

In the large intestines the mucous membrane is rather thicker, especially in the vicinity of the valve of the colon, and near the inferior part of the rectum; it has the same velvet-like appearance and the same white colour, but has its follicles scattered here and there, and not united in patches. By raising the mucous body, we see that it scarcely equals in thickness that of the mucous membrane of the small intestines, that its consistence is less, and that it but feebly adheres to the *dermis*; the latter, thicker than in the small intestines, is raised by the least effort from the muscular tunic and has very few vessels, which is a rapid sketch of the most essential characters of the healthy digestive mucous membrane examined after death.† As we know them to be such, we have a right to conclude, whenever we do not find them, that there

* "*Plaques gaufrées*," divided into little squares something like honey-comb.

† Mr. Rousseau has accumulated numerous facts, to prove that the healthy mucous membrane is white after death. I might here support this opinion by what I have uniformly observed in the bodies of infants that have died during parturition, and examined quickly after; I have always found this membrane perfectly white, or slightly rose-coloured throughout its whole extent.

is lesion of this membrane, without prejudging any thing relative to the nature of the lesion. We should not be content to examine the mucous membrane at its surface, but assure ourselves of its consistence and of the thickness of the different parts which form it, compare them, and especially bestow much attention on the slight variations they present.

To avoid the repetitions which would be inevitable, were I successively to speak of the alterations presented in the mouth, œsophagus, stomach, and intestines, I shall pass in review their principal characters, and examine the differences they present in *colour*, *thickness*, texture, and relations, and finally in the fluids, either on the surface of the parts or in their substance.

Perhaps it is not rational to examine thus separately, alterations which are most commonly conjoined; but it appears to me that this analytic method is the best in such delicate researches, and certainly it is the most precise, because it leaves the ideas most distinct by simplifying the descriptions.

1st. *Alterations in colour.*—The digestive mucous membrane is white in the healthy state, and nevertheless it is rare to find it such after death in all its parts; it often appears of a very intense red, of a slaty and blackish gray, sometimes brown or greenish. Let us first see to what its red colour is owing.

To distinguish the cause correctly, it is absolutely requisite that the mucous membrane should be raised from the other textures and slightly stretched. We shall find that the red tint sometimes depends on the injection of the large vessels of the sub-peritoneal tunic, by the transudation of the blood they contain, and that frequently the red appearance of the membrane is owing to its semi-transparency. I am persuaded that a great number of the cases of uniform redness described by authors, may be accounted for in this way, and that they were led into error by their too slight examination. It is necessary to examine with great attention wherever the colour is uniformly red, and especially when it appears slightly livid.

In the greatest number of cases, we find that the redness is not uniform, but it is owing to the injection of the vessels, principally of the capillaries of the mucous body. It is easy

to follow all their ramifications, by placing the membrane between the eye and the light, and this condition may be termed *red injection, arborisation, more or less vivid, intense*. It appears most commonly to depend on the irritation or inflammation of the membrane; however, it may be a consequence of the impeded circulation in the last moments of life, or of plethora, or owing to an aneurism with hypertrophy of its walls. This fact has been remarked by authors; perhaps they have not sufficiently insisted upon the characters which might enable us to distinguish the cause; the red injection is not a constant occurrence in diseases of the heart, and by consequence, the existence of lesion of this organ is not sufficient to remove the idea of inflammation of the mucous membrane. When it exists, it is general; all the tissues are injected; the parenchyma of the lungs, of the liver, and spleen, is gorged with black blood. We find this fluid in the principal venous and arterial trunks, and it flows thence in all parts.

In cases of inflammation, on the contrary, the injection is always to a certain degree limited, and other characters are present, such as thickening, sometimes red ulceration, and finally the *dotted redness*, which is an evident character of inflammation. I give this name to very intensely red, small, irregular, very closely placed spots, formed by blood infiltrated in the thickness of the mucous body, in such a manner, that by placing the membrane between the eye and the light, we cannot follow the vessels as in the preceding cases. It is easy to convince oneself that this is one of the most marked characters of inflammation, by examining the pharyngeal or ocular mucous membrane, of individuals dead of intense angina or acute ophthalmia. Here there is no doubt of the condition preceding death; the parts have been examined during life, we have followed the disease in its course, appreciated its progress, and can compare them with the results obtained by dissection. I have often had opportunities of satisfying myself on this subject at the Hospital for Children, where cases of this nature are frequent, and have therefore been led to consider this *dotted redness* as a pathognomonic sign of inflammation.

I have found it peculiarly remarkable in individuals dead from measles, complicated with purpura hemorrhagica, in whom the same phenomena was observed in the skin. It has much analogy with vivid red ecchymoses of the two mucous bodies; in one case similar appearances were found in the pulmonary mucous texture. In all instances we should distinguish between these cases, and the petechiæ appearing upon the skin and the mucous surfaces in debilitated patients, especially infants reduced by long residence in an hospital, and weakened by treatment instituted for a pneumonia which has not been arrested. In such children the skin is not hot, as in the acute purpura hemorrhagica, nor is it swelled; and the mucous membrane, although studded with small petechiæ of a violet red, does not often exhibit injection of the capillaries. I do not believe then that we can say this alteration depends upon inflammation; at least thus far, nothing has proved it.

After the red colour comes the uniform, deep slate-coloured gray, which we meet with when the inflammation has been very vivid and lasted for a certain time. At first sight, we cannot distinguish vessels, but by raising the membrane and placing it as I have indicated, we perceive that they are injected, and that the slate-coloured hue which concealed them, is owing to an innumerable quantity of small blackish spots, which seem to be formed by a matter deposited on the surface of the mucous body. This colour has often been confounded with that which shows itself when the parts are becoming putrid, and with the blackish colour which results from the contact of sulphuretted hydrogen gas; a gas which after death traverses the intestinal membranes, discolours them as I have stated, and produces the same effect upon the concave surface of the liver: this part very often shows this colour for one or two lines in depth. Yet it is possible to distinguish these different cases; when the grayish tint depends from the beginning on putrefaction, it slightly approaches a deep green; it is uniform, and we do not find it flecked with black; other signs of putrefaction are also evident. Besides, there is one experiment which may be readily made that will satisfy all doubts; this consists in plunging the parts into

water; when the colour is produced by inflammation, it is almost entirely effaced by a prolonged stay in the fluid, which does not follow when the colour has the other cause.

The following are the reasons on which I found my opinion, that the blackish slate-coloured gray tint is not produced by active inflammation.

1st. I have found it in subjects which perished from intense angina, or from other diseases complicated with acute ophthalmia, with inflammation of the labia majora, &c. In all these cases I have been able to assure myself of the state of the membrane during life, consequently I have right to conclude, from finding always nearly the same lesion in textures of the same nature, that they depended on the circumstances which preceded.

2nd. I might from analogy conclude that the intestines and stomach, could not present great differences in this respect, and that in them a similar lesion proved the existence of an anterior inflammation; but I have not even had occasion to resort to this reasoning; having had many opportunities of seeing intestines inflamed in consequence of strangulated hernia, operated on at the Hôtel Dieu, and of examining them shortly after the patients had perished under an intense enteritis or peritonitis, which the most energetic treatment could not arrest. Here was no chance of deception; the parts that had been strangulated were easily distinguished; they were always situated between the superior dilated and inferior constricted portion of the intestine; the inflammation had progressed and mounted very high. By placing these diseased intestines in some cases alongside of the gastric mucous membrane, the identity of their alterations were perceived.

I am contented then to indicate them, but I have thought it proper to state these facts, because they are not only of a nature to illustrate this subject, but because they may serve to remove doubts from the minds of persons who are unwilling to admit any thing which is not well proved. It may be added that it is very common to find this blackish hue in individuals of the lowest class, who, given to every sort of excess, come frequently into the hospital having gastro-enteritis which nothing can check: while it is rare to meet with it

in the Hospital for Children, where the little patients are in entirely opposite conditions, though not less fatal as relates to the termination of the disease. It is right to state, that I have never had occasion to observe patients subjected to stimulating medicines, and that the treatment, not less than the causes of the disease, and its intensity, may readily influence the appearances shown by dissection.

This grayish tint is not the only one we observe on the digestive mucous membrane; there is another slightly more bluish, which appears to be from a different cause. It is not so uniform and results from small points of a fine black, not so closely set as in the preceding; these points are formed of a black matter deposited in the mucous body, resembling melanosis, and by the central points, mucous follicles; these latter have been compared to the points of the beard, and here only form a complication. Most probably the sub-mucous vessels or capillaries of the mucous body are slightly or not at all injected. I have stated that this bluish tint has a different cause from the other; in fact, the circumstances in which it is met with, indicates that it is owing to chronic inflammation of the membrane; it is thus that we find it in the vicinity of large ulcerations, which occur in chronic enteritis, peritonitis, or mesenteritis of the same nature. It is very frequently observed at the Hospital for Children in similar cases. I have found it in the rectal mucous membrane of subjects in whom the rectum, enormously distended, filled all the lower part of the pelvis, and presented walls of many lines in thickness; besides we have observed it in the rectum of an infant of eight years old, which perished from chronic peritonitis, and with a large portion much pushed forth. The prolapsion of this intestine having existed for a long time, the mucous membrane was often seen to be puffed up, red, and thickened: on dissection, however, all this redness had disappeared: no other traces remained of this chronic inflammation, (chronic as regards duration of time,) than the grayish hue flecked with black, which was also remarked at other parts of the intestinal canal covered with ulcerations.

The colour of sphacelated intestines is black or brown, but here the softness of the tissues, and the particular odour which

is disengaged, allow of no deception as to the nature of the alteration. These circumstances should be recollected and the diseased parts carefully examined; for in some cases, and particularly in some anginose affections, the fetid brownish pul-laceous covering which is laid on the membrane, imposes upon an inattentive observer, who takes for gangrene what really is no such thing.

2nd. *Alterations in consistence.* Knowing the consistence of the mucous digestive membrane in the sound state, we may recognise the differences it presents in diseased conditions. The instances in which we find it diminished or augmented are too common not to have called the attention of accurate observers. Messrs. Cruveilhier and Louis have published very interesting observations on this subject.

Softenings of this membrane is much more common than hardening, and the mucous body is more frequently the seat of it than the dermis. I say softenings, because they are observed to be of different sorts, it is thus that it exists along with change of colour of the mucous body; for instance, in the vicinity of large ulcerations, more or less chronic, observed near the ileo-cæcal valve; it is sometimes grayish, blackish, softened and pulpy; while at the surface of the elevated plates, observed in entero-mesenteritis, it is commonly reddish, and has the appearance of bloody boiled meat. Finally, it is not unfrequent to find softening of the gastric mucous membrane, and especially of the colic portion, without well marked change in the colouring. In these cases the alteration may escape a negligent observer. To avoid being thus led into error, we should in all cases endeavour to detach the mucous body from the dermis. If it be softened we cannot raise it by strips; it yields under the forceps, or by a slight pressure of the finger it will be reduced to a pulp: below we shall perceive the dermis smooth, polished, and of a pearly whiteness.

In the majority of softenings of the gastric mucous membranes, I have found the general hue of a clear or grayish fawn colour, often intersected by irregular white striæ, formed by the dermis, which is denuded at these points of its mucous covering: this is a circumstance to be remarked: the

mucous body softens and disappears, while the softened dermis does not disappear, but rather increases in volume by losing its consistence. It is the same with the muscous and serous tunics, which may be also the seat of this change; but most frequently the patient dies before this occurs. In all cases of complete softening, the tunics were reduced to a homogeneous matter, soft, semi-transparent, and resembling glue or half fluid jelly. In one case they tore spontaneously at many points, when the stomach was placed in water. In this trembling mass some capillaries might still be perceived, containing small, black, distinct globules, which goes to prove that the vessels are the slowest of all parts to disorganize. It has been thought that this alteration resembled a serous infiltration, but this opinion falls after an attentive examination of the part. In fact, nothing organized can be discovered; it presents no trace of solidity, no trace of fibre; if it were a simple infiltration, by slightly compressing the parts, they should allow some fluid to escape, and resume their proper appearances: this does not occur in this alteration. Moreover, the interesting observations published by Mr. Louis, appears to prove that the alteration is owing to the chronic inflammation of the mucous membrane. I possess a great number of observations, which support this opinion, by the collection of symptoms they present, and the coincidence of others whose nature are undoubted.

This softening does not always exist in the stomach alone, it may be extended to the œsophagus, and is sometimes met with in the small intestines. Very frequently it is in the colon joined with another alteration of the follicles, which also prove the presence of inflammation. I shall speak of it in treating of the texture and relations of the diseased mucous membrane.

To finish what I have to say on these softenings, it may be repeated that they are observed the more frequently in proportion to the youth of the subject, and that in adults, women, especially parturient women, are most liable to it. This indicates that the lymphatic temperament predisposes to it, as it predisposes to all chronic inflammations of the organs, and that inflammation takes a peculiar course and appearance, although the first cause or irritation may be always the same.

As it is rare to observe augmentation in the consistence of the mucous membrane, without its offering at the same time an increase of volume, I shall speak of its induration while treating of alterations in its thickness.

3d. *Alterations in thickness.* Slight inflammation of the digestive mucous membrane, not long continued, does not leave much change in thickness to be discovered by dissection. But the case is different when it has been the seat of a vivid inflammation, or when inflammation has lasted for a long time. In the first case the mucous body is puffed up, swelled, and at the same time we observe the dotted redness or deep injection.

In the second case the membrane may be either very much thinned or considerably thickened. I have spoken of its thinning in speaking of its softening, and shall not revert to it, only remarking that this thinning is especially owing to the diminution of the mucous body, and that commonly the dermis itself is not changed.

When its volume is increased, on the contrary, the alteration takes place in the dermis: this by its thickening adheres more closely to the mucous body, and is sometimes confounded with the muscular tunic. Nothing is more common than to observe this condition in the vicinity of the ileo-cæcal valve, on the circumference of which large ulcerations are found so frequently. It is then joined with gray slate colour, the black dotting, and developments of the crypts. I have frequently found the rectum distended, occupying all the lower part of the pelvis, with walls of twice or thrice the ordinary thickness.

This thickening is found after anginose affections which have lasted some time. It is then accompanied by the dotted redness, and the formation of a false membrane or pultaceous matter which very frequently covers the parts.

4th. *Texture and relations.* We have seen that the digestive mucous membrane is formed of a dermis, a mucous body, and an epidermis,* and that its different parts are se-

* The epidermis proper has not yet been demonstrated to line the intestinal canal. By epidermis, the author merely means the thinnest or internal portion of the mucous membrane.

parable without any great difficulty. It sometimes happens that they are not only united and entirely confounded together, but that they are strongly adherent to the subjacent tissue: this occurs in the thickening above mentioned. Besides they may be wholly or partially destroyed, and present more or less extensive alterations. These cases allow of no doubt as to the preceding inflammatory state, and are therefore even less interesting for consideration; however, the mode in which these ulcerations are formed, has perhaps not been sufficiently insisted on. Some indeed commence in the mucous body, and extend in every direction; it is thus that we find ulcerations in cases of poisoning by concentrated acids, corrosive sublimate, or other irritants: but other ulcerations begin by disease of the follicles or mucous crypts. Of these I shall treat in considering the different alterations which these crypts present. We have seen them in the ordinary state more or less apparent, but sufficiently developed; yet it is very common to find them distended with mucous, and giving to the membrane a granulated aspect; this is observed especially in the duodenum, and coincides with phlogosis of the gastro-duodenal mucous membrane. When we then compress them slightly, we see the fluid oozing from their summits. At other times, when the inflammation has been vivid, we find them more distended by a true pus, or surrounded by a bright red circle, and finally, when the inflammation has been chronic, they contain a yellowish matter analogous to the matter of tubercles. This is frequent in the ileum, in the neighbourhood of the ileo-cæcal valves, especially in infants; it is easy then to perceive, by comparing the small ulcerations which surround them, and are advanced in different degrees, that the mucous body is destroyed around the opening of these distended crypts, and that thus are formed the greatest part of the ulcerations situated in this part of the intestine.

We also find an analogous alteration when the mucous body of the colon begins to soften. When we attempt to raise it, we perceive that the crypts containing a small quantity of whitish and sometimes grayish matter, remain implanted in the dermis and cannot be detached. In the puffy reddish

patches which are found in entero mesenteritis, and which coincide with the collection of follicles, these are so strongly developed and adherent to the dermis, that they remain implanted when the mucous body is raised, and some projections which have been compared to warts, pustules, &c. Hence some anatomists have called this inflammation *folliculous*. It often is only to be found in such spots, while all the other parts of the intestinal canal remain untouched.

I need not say more relative to ulcerations of the digestive tube: it is known what ravages they may commit, and how by extending themselves in depth, they produce the perforation of the canal, the effusion of matter, peritonitis, &c.

5th. *Alterations of the secreted fluids.* In the healthy condition, the digestive mucous membrane secretes the quantity of mucous necessary to its functions; but the increase or diminution of this quantity are consequences of disease. Thus we often find in the stomach, when its mucous membrane presents signs of injection, dotted redness or a slightly grayish tint; a great quantity of very tenacious mucous viscosities strongly adhering to its surface. Sometimes there is nothing but increase of the secretion without great alteration of qualities; at other times, on the contrary, this mucous approaches by its characters to ordinary pus, and may even be entirely purulent; and it is not rare to find on the surface a coat of variable density, and of a yellowish or grayish colour, easily to be raised, and allowing the mucous body, thickened and dotted with red to appear. The pharyngeal mucous membrane is most frequently the seat of this alteration: however it is seen to prolong itself throughout the œsophagus and stomach. Something analogous is occasionally found in the great bowel around ulcerations, or even where none are present; the coated patches being only much smaller, irregular, granulated, grayish, very friable, and thin. We find also other liquids secreted on the surface of the inflamed mucous membrane; for example, in the case of entero-mesenteritis before cited, it is not uncommon to find swelled patches covered with a bloody, reddish paste, sometimes in great quantity. We also occasionally see blood upon the surface of the digestive mucous membrane either in the stomach or intestines;

and it is then altered and blacker than usual. The intestines, freed of air, occupy a small space; by removing the bloody matter from the surface, we can most commonly convince ourselves that the mucous texture is injected.

In some bodies dead from purpura hemorrhagica, I have found in the large intestines a black matter, analogous to meconium, adhering to the mucous membrane, which was probably nothing but blood in an altered state. It is not uncommon to observe pus combined with the mucous body, which is then yellowish and as if scarified. We may even find it disseminated in little collections in the thickness of the membrane without its appearing to be secreted by the follicles.

We know what an enormous quantity of fluid may be ejected upwards or downwards in cholera, dysentery, chronic diarrhœa, &c.

We may perceive that to treat all the conditions and embrace at one view all the pathological anatomy of the digestive mucous membrane, one should be placed in circumstances favourable to the observation of each of these alterations in particular, to have grown old in the hospitals and pale over the dissecting table.



ART. IV. *Description of an extensive disease of the Pericardium.*

By GEORGE SPACKMAN, Student of Medicine, [with a plate.]

WHILE recently engaged in dissecting at *The Philadelphia Anatomical Rooms*, I observed some morbid appearances of the pericardium, which, so far as my information goes, have been rarely met with to the same extent.

The subject was a black, probably about forty years of age, and had evidently been a hard-working man; but I have to regret that it was not in my power to obtain any particulars of his history. On opening the thorax the pericardium was observed to be enormously distended by a fluid, so as to occupy nearly the whole anterior portion of the chest, and compressing the lungs into a very contracted space. On cutting

into the sac, not less than two quarts of viscid, bloody serum were found in it. Upon inspecting the pericardium and heart the following appearances presented themselves. The entire internal surface of the pericardium, as well the reflected portion as that covering the heart, was lined with a preternatural tunic or membrane. This membrane in some places presented a rough surface, formed by small, irregular granulated masses, extremely vascular, and varying in size from a pin's head to a small bean. These carunculæ were occasionally so grouped together as to form pendulous excrescences, especially towards the base and apex of the heart, and on the reflected pericardium. The external surface of the left ventricle was completely coated with a dense, reticular structure, frequently exceeding an eighth of an inch in thickness, and so firmly attached to the pericardium as not to be separated from it without laceration. Towards the base of the heart the fleshy excrescences were as large as an almond; and the lymphatic glands in the same vicinity were much increased in size. In fact, the whole surface presented the morbid appearances I have attempted to describe, though in considerable variety in different places. There was no rupture of vessels, and no coagulating lymph was observed in the fluid of the sac. The pulmonary artery was considerably contracted at its exit from the right ventricle, from an accumulation of adventitious membrane on its exterior. The cavities of the heart were all preternaturally enlarged; but its muscular and valvular structure showed no signs of disease. It may be added, that the lung of the right side adhered its whole length to the pleura costalis; this condition was evidently of long standing. The lungs themselves were sound; the spleen contained a number of scrofulous tubercles; and the lymphatic glands in several parts of the body were much enlarged.

There was a duplicate vena azygos; the arteria innominata was wanting, and the subclavian artery of the right side arose from the aorta about an inch below its curve, and passed behind the œsophagus. The thyroid gland was extremely small, but the lymphatic glands at the superior part of the chest were the size of a large hen's egg.

The condition of the pericardium, as above described, is clearly attributable to inflammation; but it is astonishing that life could be maintained against such accumulated disease in an organ so essential to vitality, for though we have no history of the case, there is sufficient evidence in the morbid appearances to convince us that the disease must have continued for a long period; and though originally of an acute character, became at length a truly chronic affection. This is inferred from the abundance of the morbid structure, its great vascularity, its complete organization, and lastly, the immense distention of the pericardial sac. The patient was greatly emaciated, and appeared to have died of a lingering illness.

Dr. BAILLIE, in the plates to his work on the Morbid Anatomy of the Human Body, gives drawings of several diseased appearances analogous to the one in question, but they are evidently less extensive and less perfectly organized. Instances also occur, though rarely so well characterized, in the works of BICHAT, LAENNEC, and other writers on Pathological anatomy.

For the annexed accurate drawing I am indebted to the politeness and skill of my friend Dr. S. G. MORTON.

Fig. 1. Represents the posterior or left ventricle and its preternatural tunic, which diminishes in thickness towards the apex of the heart: it also shows a number of glandular enlargements towards the base, and some of the carunculæ in the same vicinity.

Fig. 2. A portion of the pericardium, showing the carunculæ on its surface.

Fig 1



Fig 2



*Lateral view of the Left Ventricle
half the natural size.*

ART. V. *A General View of the Hospitals of Paris.* By F. S. RATIER, M. D. Translated from the French by G. EMERSON, M. D.

[Continued from Vol. II. page 274.]

Maison de Santé.

IF I have spoken of the *Maison de Santé*, which is not, it is true, the seat of any public instruction, my only object has been to present to my readers some of the formulas employed by Professor DUBOIS. Although devoted more particularly to the practice of surgery, this eminent practitioner engages very often in the treatment of internal affections, for which a great number of patients seek his advice. It is known that Mr. Dubois professes to hold opinions upon many points of practice, which are peculiar to himself, and supported by a long experience. Thus it is, that he regards the tonic treatment as the most advantageous in scrofulous and scorbutic affections, &c.; that he considers mercurial frictions, pushed even to salivation, as the surest means of curing the most inveterate or rebellious venereal diseases, whilst the greater number of physicians regard salivation as a grievous consequence of the mercurial treatment, which is to be particularly avoided. His opinions, in general, resemble those of BROWN; he makes very frequent use of stimulants, tonics, and revulsives; bleeding is a resource, relative to the application of which he is extremely cautious, even in those cases where the greatest number of physicians insist upon its employment. He rarely prescribes general blood-letting in the acute phlegmasias, be they membranous or parenchymatous, confining himself for the most part of the time to the occasional application of leeches, followed by blisters.

Maison d'Accouchment, otherwise called Hospice de la Maternité.

The preceding observations are applicable to the *Maison d'Accouchment*, constant access to which is denied to the students of medicine and stranger physicians. In the mean

time, there is no one who would not be happy to obtain a summary knowledge of the practice of the celebrated physician who has charge of the infirmaries of this fine establishment. Imbued with the precepts of Hippocratic medicine, Mr. CHAUSSIER has devoted himself to numerous researches upon the diseases of child-bed women. An enemy to those systems, which, shining by some of their faces, too often lead those practitioners who resort to them into sad errors, this professor makes his profound physiological knowledge subservient to a judicious and rational practice. It is worthy of remark that he employs but a small number of medicines, generally preferring those, the properties of which are well known, and never trying new substances but with the greatest caution.

Hôpital Saint-Antoine.

This hospital, in consequence of its situation, and the beauty of its buildings, may perhaps be regarded as the most salubrious of the capitol. It is not very extensive, and is for the most part filled with patients from the quarter in the midst of which it is situated. Patients of both sexes, affected with external or internal diseases, are admitted into it, and likewise those afflicted with such chronic complaints as have no hospital appropriated to their special reception.

Mr. BEAUCHENE, is the surgeon in chief of this establishment, and Messrs. KAPELER and LULLIER WINSLOW, physicians well known by their valuable labours, direct the treatment of the internal diseases. Dr. Kapeler, in particular, has occupied himself very much with researches into the *Materia Medica*, and, it is said, has employed with great success the contro-stimulant practice of the Italian school. This method, which I shall explain, is now followed by a certain number of practitioners, and it is in this hospital where twelve, twenty, thirty, and even forty grains of tartar emetic are administered in the course of a few hours, and in a quantity of liquid very small in proportion to that of the medicine. What is remarkable, but nevertheless true, the patients not only experience no injury, but are not even affected by vomiting.

and show no primary effects of importance. I leave the consideration of these facts to physiological readers, and abstain myself from any observations.

Dr. Kapeler is one of those physicians who have sanctioned a modification of the empirical treatment of the painters' cholic, which has been consecrated by long usage. He has also by experiments, the results of which he proposes to make public, carried to a very great height the doses of most of those substances which are reputed very energetic, and which many persons still administer with so much reserve that the cures obtained by their means are new proofs of the medical powers of nature.

Hôpital de la Salpêtrière.

This vast establishment contains within its limits in addition to a civil hospital, a hospital for monks. Women advanced in age or affected with incurable diseases are admitted into it, and likewise females labouring under mental alienation, who have separate buildings allotted to them. This part of the establishment is confided to the care of Professor PINEL and Doctor ESQUIROL, who now replaces his respectable tutor. The surgical wards are committed to the charge of Professor LALLEMANT, and the infirmaries of the hospital for monks, to Messrs. ROSTAN and FERRUS. The clinical instructions of Mr. Rostan are very well attended, but it is chiefly for the purpose of devoting themselves to the study of mental alienations that students frequent the Salpêtrière, where Dr. Esquirol delivers a clinical course upon this class of diseases, which is very well attended. All who are acquainted with this able physician know, that his treatment of the different species of vesania, consists less in the accumulation of a large quantity of medicines, than in the judicious employment of hygienic measures, and a moral treatment. For this reason, his name is little calculated to figure in a formulary, but I think readers in general will see with interest some notes upon the means put in practice against intellectual injuries, for which I am indebted to the kindness of Dr.

Esquirol.* In order to restore the brain when affected by mental alienation to its right condition, the physician may have recourse to two modes of treatment, one of which consists in modifying the organ even by the exercise of its functions, and is called the *intellectual or moral*; whilst the other drawing its resources from the *Materia Medica*, and having for its object the fulfilment of the different curative indications, is styled the *physical*.

1st. *The moral and intellectual treatment.*—To seclude maniacs from the objects which have excited their diseases, and from the parents or attendants whom they detest, or refuse to obey. 2. To treat them with mildness, but occasionally with firmness. 3. To class them in the establishment in such manner that they cannot hurt one another, and in a way calculated to promote their recovery; to place the furious together in a quarter at a distance from the other patients; to shut up in rooms having little or even no light those patients which labour under great excitement, and not to force those who are affected with an excessive heat to dress in clothes either too warm or too tight, even in winter. 4. To separate entirely the convalescent from all other patients, by making them pass successively into more quiet dormitories as they approach the period of their discharge; to be very particular in withdrawing from those dormitories such patients as are threatened with a fresh attack or exacerbation; to induce those patients who are not entirely deranged, to work, play or walk: to employ only as a means of restraint or punishment, the strait waistcoat, seclusion in a cell, the passage from one division into another, the shower bath, &c. and never to have recourse to blows, or chains, or other improper measures; to conduct the first interviews between the patients and their friends or neighbours; to provoke sometimes violent commotions in the mind by a surprise, a fright, or unjust reprimand; to substitute one passion

* These notes have been communicated to me by my colleague, Dr. Georget, the pupil and friend of Dr. Esquirol, and to whom we are indebted for his interesting labours upon the physiology of the brain and mental alienations.

for another; never to get involved in vain discussions with the insane; to take special care not to provoke them to anger or fury, either by amusing ourselves with them, contending directly against their notions, their passions, &c. favouring the reunion of the convalescent insane; keeping over those who show an inclination to suicide a very strict watch, even for a long time after they seem to have abandoned that sad idea, as otherwise we run a great risk of being the dupe of deep dissimulation concealed with admirable prudence; equally to watch over and to isolate such patients as are addicted to masturbation or more shameful vices; to avoid recalling to the insane which have been cured, either the extravagances of their delirium, or the causes which have affected them disagreeably, at least when they are not the first to fix the conversation upon such subjects; to prevent relapses by advising a removal of the causes; such are the principal rules for the moral treatment of the insane which are resorted to at the Salpêtrière.

What is denominated the *physical* treatment, consists in the employment of means calculated to promote or preserve the general health, with such medicinal agents as are proper to fulfil the various curative intentions.

The hygienic treatment.—To preserve the insane from excesses of temperature and sudden changes in the weather, by keeping them during the winter in apartments sufficiently warm, preventing them from going bare-foot upon the ice or snow, and especially by taking care that during the great heats of summer, they shall not be exposed to the rays of the sun; to wash out and air daily, those cells which require such attention; to tie to their beds during the night all those who have a disposition to lay upon the floor, and such paralytics as involuntarily throw themselves out of bed, or what is a still better mode, to put these last into a kind of trough which will hold them without restraint; to take great care to keep the insane covered during the night, especially when the weather is very cold, to prevent the feet from freezing, for which purpose nothing answers better than a straw bed placed over the covering. To administer in every case one

or two baths for the promotion of cleanliness; to cut the hair whenever there exists much heat in the head, a state of habitual irritation, or of congestion towards that part, and when the patients are so ungovernable that it is impossible to take care of it; to administer four times a day, a wholesome and abundant nourishment, and particularly to refuse but rarely either drink or food to the patients even during the night; to make those who obstinately refuse aliments, take glysters of broth, and to inject into the stomach by means of a tube introduced into the œsophagus, milk, broth, and sometimes wine. In performing this last operation, the pain occasioned by the instrument to the inside of the nose, often induces them to eat; sometimes, however, they are so very obstinate as to bear every thing rather than abandon their determination.

Notwithstanding that there is but a small quantity of medicine employed at the Salpêtrière, and that, properly speaking, there are no formula to be gathered from the clinic of Dr. Esquirol, we can nevertheless give some idea of the medicinal measures by which he seconds the preservative and moral divisions of his treatment.

Curative indications.—Insanity is ordinarily of long duration. Its nature is very difficult to comprehend, at least such is the case in most instances. The indications of the treatment founded upon that knowledge, are therefore almost always difficult to seize upon, being frequently but slightly marked, or altogether obscure. It is likewise very necessary to state, that in this disease the chances of cure are not always very favourable, since among those relieved at the Salpêtrière, there is scarcely a third which do not present some symptoms of incurability. All these causes ought to render the physician very circumspect; he should abstain from prescribing remedies rather than hazard their administration without certain indications, in which case they might produce effects different from those which could be desired of them: he should especially take care not to suffer himself to be imposed upon by the violence of certain symptoms, and made believe that the cause of the disease is in proportion to their intensity. Under two circumstances alone the physi-

cian may be allowed to act with a certain vigour: these are at the onset of the disease, and when the employment of the means rationally indicated, has been continued for so long a time that incurability is to be feared. When insanity has assumed a chronic stage, after several years continuance, if it degenerates into dementia, and particularly if it is complicated with paralysis, there can be no longer any prospect of obtaining a cure: the physician has, therefore, no other view than that of prolonging life by preventing and combating those cerebral or other accidents by which it might be endangered. The nature of this work does not permit a detail of the curative indications which may present themselves in the progress of insanity, and of pointing out the appropriate measures. We shall therefore confine ourselves to a small number of observations upon some of the principal means made use of.

Sanguineous evacuations.—Blood-letting has often been abused in consequence of confounding general plethora and cerebral congestion with the raving stage, to reduce which a diminution of the mass of blood has been deemed necessary. This is an error; for plethora and cerebral congestion have different characteristics from those of raving, which characteristics often exist in its absence. In vain may we hope to compose with certainty a furious maniac by bleeding to excess; patients have become still more furious afterwards, and it has only been by regaining their strength that they have ceased to be so. The paroxysms of raving mania have lasted the same length of time with and without blood-letting. But when there exists a real plethora, a state of cerebral congestion, particularly towards the commencement of the disease, we should not hesitate to draw blood, either generally, or by the application of cups or leeches. If there be a suppression of any habitual sanguineous discharge, these means should be employed near those parts which have been the seats of the periodical evacuations.

Baths.—The warm, but rarely the cold bath, is employed at the Salpêtrière. It affords a very advantageous method of soothing the various symptoms.

Douches.—These are seldom had recourse to, and used with the greatest circumspection, particularly when there exists violent cephalalgies, with a very great heat of the head. The douche is more frequently employed as a means of repression for those subjects who have been seized with some unfortunate resolution, such, for instance, as starving themselves to death. They should not be continued longer than a few seconds; and rarely more than a single minute.

Cold applications and affusions upon the head, are often very useful in calming the excitement, and are always without danger. In cerebral congestions, the first step is to bleed from the jugular vein, apply leeches to the neck, and the warm bath, in which the patient should remain immersed for a greater or less time, during which refrigerant applications are made to the head.

Emetics.—Vomits are useful in consequence of the shocks they produce in certain cases of stupor and insensibility without any symptoms of irritation, but they cannot be used too cautiously, on account of the impulse which they give the blood towards the head.

Purgatives.—These are often useful as a means of relieving constipation, a symptom of great importance, upon which we should bestow great attention, and also as a means of establishing a salutary derivation towards the intestinal canal.

Derivatives.—Derivatives directed to the intestines and skin are in general use, and prove highly advantageous in most cases of mental alienation, especially in those which occur to lying-in women. Purgative injections and cutaneous suppurations are preferable to any others in the cases mentioned.

Moxas, vesicatories, setons.—The application of moxa to the head has made many cures; in one instance it produced cerebral inflammation which proved mortal: frequently no change has been effected in the form of the disease by its application. The same remark will apply to the use of the actual cautery. Setons in the neck and blisters, are fre-

quently employed upon the same principles and with the same precautions.

Narcotics.—These are rarely useful in the commencement of the disease. They often produce no effect, and when they do induce sleep, this is almost always followed by delirium.

General measures.—The patients are supplied in abundance, during the stage of excitement, with acidulated, mucilaginous, and nitrated drinks. When it is requisite to support the strength, light tonics may sometimes be employed with advantage; in a word, our practice must be regulated by general principles.

Hôpital des Enfants.

This building is appropriated to the treatment of persons under sixteen years of age, of whatever sex or disease. It is there only that one can study the diseases of children, so important and difficult to understand, in consequence of the vagueness and obscurity of the symptoms which the subjects present, and of the modifications produced by age during the progress and consecutive treatment of the patients. We shall find all that we can desire upon this subject, in the lectures of Messrs. JADELOT and GUERSENT, lectures in which they impart to their auditors what long practice and sound experience has demonstrated to them.

Mr. BARROS, the elder, has charge of the surgical wards, which do not in general offer any thing very interesting.

In this hospital those affected with chronic, scrofulous, and cutaneous diseases, are placed in wards separate from those which are appropriated to acute diseases. The patients affected with tinea are confided to the care of the brothers MAHON, who are proprietaries of a remedy which they have been authorized to experiment with under the inspection of the physicians of the establishment who verify the cures. The remedy of the Messrs. Mahon is kept a secret, and appears to be very useful in its results.

The practice of Mr. Guersent is extremely simple and rational. He examines the symptoms with the greatest care, and never resorts to violent measures but with the greatest

circumspection, being persuaded that nature has never more resources, than at an age, when the organs have hardly yet exercised their functions. Observation of the sick, and numerous researches in pathological anatomy, have convinced him as well as many other physicians, that inflammations form a very great majority of the diseases of children. Without insisting upon this point, I shall proceed to present the details, which, collected by Dr. TROUSSEL-DELVINCOURT, have been reviewed by Mr. JADELOT himself, and constitute a summary of his opinions upon a branch of the art which he exercises, with as much modesty as ability and success.

A long while before the revolution which has been effected in medicine relative to certain fevers, this practitioner, pursuing the course of his observations, specially directed upon the diseases of children, was led to recognise in these affections a more limited and determined seat. Endowed with excellent sense, which a long practice has greatly perfected, he was not long in making known a great number of fevers and phlegmasias, either isolated, or complicated of the abdomen, breast, or head. From that time even he discovered that those of the abdomen were in an infinitely greater proportion. Mr. Jadelot has formed no particular opinion relative to intermittent fevers, of which, it may be observed *en passant*, the number is very small: he follows the well-known treatment, modifying it, accordingly as he observes in the height of these general affections, some functional derangement in particular organs. It is thus that he employs, with such incontestible success, a mixed treatment, that is to say, antiphlogistics directed upon the parts which appear the seats of some irritation, and at the same time, the bark alone or united with camphor in the form of enemas.

Almost all which the class of fevers lost, was reported in that of the phlegmasias: these were studied with more care, and the treatment better adapted to their seat and nature, became less protracted and more happy. Mr. Jadelot was one of the first physicians to acquire a positive knowledge of the phlegmasias, and especially of those of the stomach and intestines; he created, as it were, new means for discovering

them, for, by inspecting the features of the countenance only, he was capable of arriving at a correctness of diagnosis truly remarkable.

That *semiology* which particularly belongs to the first period of life, although we may sometimes derive advantages from it in the affections of adults, Mr. Jadelot has denominated physiognomonic. I believe I shall perform an agreeable and useful task to the reader by giving him a succinct idea of it.* Independently of the alterations in colour which the face may present, and which may furnish the physician with signs more or less positive, the expression of the physiognomy and the greater or less prominence of this or that feature have also the power of assisting the diagnostic.

In the infant, the facial muscles of which are not endowed with a very great mobility, three principal traits present themselves to the observer. They run nearly parallel, and have a direction from the centre towards the sides of the face. The first, (the zygomatic,) leaving the great angle of the eye, go to lose themselves near the corners of the mouth. The second, (the nasal,) begin on the upper part of the sides of the nose, and proceed in a semicircular direction towards the commissures of the lips. They are sometimes cut by a small trait, (genal,) which directs itself towards the middle of the cheek. The last, (the labial,) has its origin at the commissure of the lips and goes to lose itself in the chin.

Each of these traits or features corresponds with some one of the splanchnic cavities. The first is connected with the diseases of the cerebro-nervous system: the second with its accessory, (the genal,) are connected with abdominal lesions; whilst the third points out the affections of the organs of the circulation and respiration.

This mode of investigating diseases, valuable with patients incapable of furnishing to the physician any symptoms, calls for great experience, but the happy results which are obtained from it in the end, indemnify him for the researches to which he is obliged to devote himself.

* For the most ample details, see the Treatise upon the Diseases of Children, by Michael Underwood.

In the small-pox, Mr. Jadelot is particularly desirous of ascertaining the various affections which might be complicated with it, either in a concealed or manifest manner, and it is by this knowledge that he regulates his treatment. Thus when he is shown a violent case of angina, without having regard to the period of the eruption he employs antiphlogistics and the most energetic revulsives. Should signs of gastric irritation supervene, he combats them by appropriate means, persuaded that the eruption will more easily make its appearance. In low cases he has recourse to excitants, and also to tonics taken internally either by the mouth or in the form of glysters. He recommends, during the suppurating stage, to let out the pus contained within the pustules, and particularly that which collects in great quantity from the confluence of the eruption, by opening them with the point of a lancet or else cutting their tops with scissors, and immediately cleansing them with a piece of fine linen. In the convalescent stage he employs with success, simple, warm, or emollient baths to expedite the removal of the crusts and to render the cutaneous transpiration more easy.

The measles more frequently than the small-pox present this complication of phlegmasias, particularly in the mucous and parenchymatous structures of the thoracic organs, and this complication requires still more care than the primary disease. For the purpose of diminishing pulmonary excitement, Mr. Jadelot is in the habit of adding to antiphlogistics warm maniluves, together with enemas containing vinegar, common salt, or flour of mustard. If the eruption, after having appeared, happens to be suddenly suppressed, which generally takes place in consequence of the development of inflammation in some other part of the system, he attacks it with a degree of energy proportioned to the danger which the patient runs. If notwithstanding these measures, the eruption is backward in making its appearance, he resorts to vapour baths or to frictions, either dry, or rendered more irritating by the use of suitable liniments. Mr. Jadelot does not hesitate to prescribe tonics and excitants, both internally and externally when the eruption does not show

itself properly in consequence of the weakness of the patient. He confines the convalescent to a very strict regimen, rarely administers purgatives to them, and when he does resort to them uses only the mildest.

The treatment of scarlet fever differs but little from that of measles. Mr. Jadelot recommends a careful examination of the throat, for the purpose of being able to combat in time the gangrenous angina which is often complicated with it.

The gangrenous angina is the same whether it be preceded by scarlatina or whether it manifests itself without any previous disease. At the commencement of this affection, which is generally inflammatory, Mr. Jadelot pursues a course purely antiphlogistic; but as soon as he perceives large spots of a whitish appearance in the lower part of the throat accompanied with symptoms of general debility, he hastens to employ sinapisms to the feet, injections into the throat of the decoction of quinquina, cataplasms of rice flour prepared with a decoction of bark and sprinkled with aromatic vinegar at the moment when it is applied under the jaw; in fine, enemas with the comphorated decoction of bark, diluting drinks and fumigations with vinegar directed to the lower part of the throat. He promotes the action of the bark poultices by frictions made to the sides of the neck with the volatile liniment. Occasionally, but very seldom, he resorts to the internal administration of tonics.

Inflammation of the mucous membrane of the respiratory passages, is a very frequent disease during the period of infancy. The danger from it is greatest in proportion as it is seated near the larynx. Mr. Jadelot is the first, who, by an attentive examination of the patient, has acquired an accurate knowledge of the seat of angina, and this is of immense importance in regard to the treatment, which, although founded nearly upon the same basis, ought to be conducted with a greater or less degree of activity and promptitude in proportion to the existence of laryngeal or tracheal angina, or still more if the inflammation invades the whole mucous membrane of the aerial passages. This treatment consists in the

application of leeches upon the anterior part of the neck, sinapisms changed over the lower extremities, laxative or purgative enemas, and even in the administration of emetics; these generally consist of ipecacuanha in powder or syrup, to the last of which he gives a preference. He employs them in subjects where there is great debility and little excitement, and after the inflammation has been reduced by local blood-letting. In such cases he does not hesitate to have recourse to them often in succession, and even after short intervals.

Mr. Jadelot, regards the croup as a species of angina of the wind-pipe, an angina presenting the most violent symptoms, and specially characterized by distinct paroxysms separated by very transient remissions. He admits of several degrees in the disease corresponding with its intensity, but which do not alter the opinion relative to its nature.*

Bleeding with leeches and emetics are the chief agents employed in the treatment of croup. Vomiting alone has often been sufficient to put an end to the disease, especially when the subjects of its attack have been feeble, pale, and bloated; but under opposite circumstances he insists upon the application of leeches,† and promotes the discharge of blood until the child becomes pale and the pulse feeble. If the flow of blood is too soon suspended there will be danger that the progress of the disease will not have been arrested, and we might

* Mr. Guersent, in his clinical lectures, distinguishes a false croup, which he cures without any other means than diet, rest in bed, and the use of some diluent drinks.

† Mr. Jadelot has never been restrained from their application by the fear of not being able to command the hæmorrhage which takes place from punctures made where the vessels are somewhat large, and where compression cannot be made. This object can always be effected by means of tinder [amadou] moistened with vinegar or sprinkled with powdered alum or rosin; or, at any rate, by the application of the lapis infirmalis. The most convenient manner of applying this is, to dry the puncture perfectly, and as soon as a little blackish crust is formed, to place upon it a small piece of tinder [amadou] which is to be kept there several minutes by pressure with the end of the finger. But of all other methods the most certain and least painful is cauterization by means of a small stylet heated to whiteness.

then be reduced to the disagreeable necessity of resorting to a new application of the leeches.

After bleeding, Mr. Jadelot administers emetics several times in succession, at intervals of two or three hours, a practice which is attended with great success, the children becoming better every time they vomit.

When the croup has reached its second stage without being arrested, and the presence of a false membrane is to be suspected, Mr. Jadelot again resorts to the application of leeches; but as soon as they have fallen off, he hastens to exhibit an emetic, and it is in such cases that he employs the potion called *anti-croupal*, in doses of a teaspoonful every ten or fifteen minutes, until he has induced vomiting.* He also recommends the use of revulsives directed to the skin or intestinal canal; and advises sneezing be provoked.

When the disease is very rapid, ought we to commence the treatment with bleeding or the administration of an emetic? Upon this point Mr. Jadelot is of opinion, that bleeding should be first resorted to if the child is robust and presents the signs of a congestion towards the superior parts. On the contrary, we should begin with an emetic, and afterwards have recourse to leeches if requisite, when the subject is pale, prostrated, and has very little heat or fever.

The sulphuret of potash is a remedy which Mr. Jadelot never employs during the existence of croup, especially when it is inflammatory; he regards it as dangerous, and therefore only administers it occasionally under opposite circumstances; the dose varies, but should not exceed half a drachm in twenty-four hours.

After numerous observations this physician has adopted the opinion that the whooping-cough consists of an inflammation of the bronchia, accompanied with a peculiar affection of the nerves which distinguishes it from ordinary catarrhs.

* The following prescription for this preparation is given by Mr. Ratier:

Infusion of Polygala,	- - - - -	℥iv.
Syrup of Ipecacuanha,	- - - - -	℥j.
Oxymel of Squills,	- - - - -	℥iij.
Tartar Emetic,	ss - - - - -	gr. iiss.—Tr.

In consequence of this manner of viewing the disease, his treatment consists of sanguineous evacuations and of such means as produce relaxation, employed in every form, at the same time that revulsives with narcotics are used internally, and applied externally to the breast: these consist of cataplasms moistened with half a drachm or a drachm and an half of pure laudanum, or of a solution of the gummy extract of opium.

In acute hydrocephalus, Mr. Jadelot distinguishes a gastrointestinal irritation which shows itself at the commencement of the attack, preceding more or less the development of the cerebral symptoms, and which he endeavours to subdue by means of topical bleedings and emollient applications upon the abdomen. At a later period, and when the head appears to be the principal seat of the affection, he directs to this part antiphlogistic measures of greater or less energy without in the mean time losing sight of the abdominal irritation. Mr. Jadelot never applies ice to the head except in the first stage of the disease, previous to the period when effusion takes place and during the existence of violent congestion in this part. He recommends that it be not employed until after the necessary local bleeding has been resorted to, or that the applications be made whilst the patient is plunged in a warm bath. Such is the treatment resorted to in the first stage, but when the symptoms known to Mr. Jadelot inform him that effusion has taken place within the cranium, he directs derivatives externally, applies a blister to the back of the neck, and uses frictions to the extremities with acetic æther or the volatile and aromatic liniments: he also has the head shaved and frictions made upon it with mercurial ointment, using half a drachm each time; these are renewed every third, fourth, or sixth hour, after cleansing the head with volatile liniment. In the mean time he administers calomel internally, in doses of two, three, and four grains, repeated four or five times a day. His last resource is a very large blister upon the head.

Here terminate the general considerations upon the hospitals, which I have added to my work for the purpose of fur-

nishing my readers with some information relative to those establishments which contribute so greatly to medical instruction. I am far from considering this notice complete. The subject is of too great magnitude to admit of being treated incidentally, and might furnish in itself the subject of a very curious work, particularly to strangers.

I have omitted much interesting matter in consequence of the abundance of the materials, and if I have dwelt most upon particular hospitals, it is because they are for various reasons, more specially devoted to instruction. This sort of preference does not imply any disdain on my part, for those practitioners of whom I have not spoken.

Upon the whole, the physician who visits the hospitals of Paris, will there see with satisfaction the practitioners who have charge of them, rivalling each other in zeal and talent, and substituting a rational and analytical course to those subtle, and sometimes seducing theories of ancient medicine. He will find by comparing their modes of practice, an accordance and an analogy, which afford strong proofs in favour of the true practice of medicine.

The physiological doctrine more or less modified, but remaining entire as far as relates to therapeutics, is adopted almost throughout, either manifestly or by a gradation easy to follow.

There is, in general, a good deal of reserve displayed in the employment of tonics, stimulants, and other active remedies, means which are doubtless useful, but which have been singularly abused.

Observation and reason have brought back practitioners to expectant medicine. Some confidence is placed in the preservative efforts of nature, and polypharmacy has yielded in most cases to the employment of hygienic agents judiciously combined. In the mean time the resources of the *Materia Medica* are not despised. By repeated experiments in many hospitals and by various practitioners, attempts are made to verify the properties of new substances, and to confirm those which the ancients have attributed to medicines

transmitted to us, whilst at the same time new applications of them are sought for.

In fine, instead of losing time in learned discussions which are but too often useless, particular observations and anatomical researches are multiplied, and these afford the only true basis of medical science.

ART. VI. *On the Pathology of Febrile Disease, with a consideration of the modus operandi of certain remedial agents, in reference to pathological indications.* By R. W. WALKER, M. D. of Natchez, Mississippi.

FEBRILE disease, according to the computation of the immortal SYDENHAM, destroys at least two-thirds of the human race. Whether this estimate of that accurate observer be mathematically correct, is not our present business to examine; nevertheless, in the *mere* submission of an opinion, we would not hesitate to declare our decided belief, that a general and minute analysis of this subject would fully demonstrate, that the designated proportion is greatly short of the real number of those who fall the victims of that disease, which, in the common language of pathology, is denominated fever. Indeed, we think it sufficiently obvious to every one who has been even a *common* observer, within the circle of his acquaintance, of passing events in relation to disease, or has examined the ordinary bills of mortality, that this malady constitutes, by far, the most formidable outlet to human life. Regarding, therefore, this proposition as self-evident, it is an easy and legitimate inference that commensurate with the ills of humanity, attributable to fever, does a knowledge of its nature, and the means by which its empire may be weakened or destroyed, rise in importance to the philanthropist and the philosopher, but more especially to the votary of the healing art, who should most happily unite these characters in himself, and whose province it is more particularly to wield the weapons of warfare, and by his wisdom and va-

lour to rescue those claiming his aid in their behalf, from the desolating ravages of so potent and insidious a foe to the peace, happiness, and life of man.

Under the impression, therefore, that in the *importance* of this subject, on which *folios* have been written, and the most able geniuses of *this* and *other* ages have expended their powers of description and analysis, thereby *more* than tacitly declaring its high claims to close, intense, and persevering investigation, a sufficient apology will be found for the present humble effort, to developpe febrile pathology, we proceed without further preliminaries to the proposed point.

It yet remains to be proved, that the *aggregate* excitement of the system can, in any instance, be raised *above* the healthy standard. We know of no popular authority which defines disease thus, and this would surely be disease, because a deviation from health. We are, indeed, told of "diseases of excitement," but no one, so far as we are informed, has distinctly said, that this excitement pervades *simultaneously* every tissue of the living system. In fever, although excitement exists, it is not *general*, but *partial* in its character, as will, we hope, be fully demonstrated hereafter.

There is probably in every tissue of the human body, a certain amount of excitability, which if operated on by *appropriate* stimulus, will allow the production of higher excitement than that of health, nevertheless, we hold it as a first principle, to which there is no exception, that such excitement is never produced but at the expense of a corresponding diminution of vital action in those tissues or organs, most immediately connected with those preternaturally excited; whether this connection is referable to continuity of tissue, contiguity, dependance of function, or sympathy, below the standard of health. Thus where an increase of vital action beyond the healthy quantum appears in a part, tissue, or organ, we invariably regard it as an evidence that other parts are inactive in the same ratio. This is unequal excitement, and when considering disease in its *sensible manifes-*

tations, we think this should be the only definition ever given. Dr. JAMES JOHNSON remarks, "if an appeal, however, be made to accurate clinical observation, it will probably be found, that from the first till the last moment of fever two phenomena are constantly present, a derangement in the balance of the circulation, and the excitability." Although the view here offered may be less exceptionable with reference directly to practical purposes, with all due deference to so high an authority, there is an obvious want of rigid *a priori* analysis, in supposing the *consentaneous* existence of these two phenomena. They stand uniformly in relation to each other as antecedent and consequent, therefore to be regarded as cause and effect; and, although the cause may still exist simultaneously with the effect, its priority of existence must be conceded, or it could not be a cause. There can be no derangement in the circulation, without a previous change in the organic sensibility of the circulatory organs, and since all circulating fluids in the system are under the entire control of the vessels containing them, and as these vessels cannot distribute their fluids unequally, unless first excited to do so, therefore excitement is unequal in the circulatory vessels as an indispensable antecedent to the production of inequality in the circulation. The first link in the chain or morbid phenomena characterising fever or any other disease, *ipso facto*, is a variation incompatible with health of the organic sensibility of certain tissues or organs, which is necessarily productive of varied conditions of excitement in such tissues or organs, which excitement is productive ultimately of a corresponding variation in the distribution of the fluids contained in the excited organs, and over which as living solids they exercise entire control. This change in the organic sensibility may be regarded as synonymous with the first element of fever, as designated by Professor CALDWELL a "morbid impression" in his luminous analysis of that disease lately published. That derangement of the circulation so obvious in fever, is the *direct* consequent of this change in "morbid impression," we are not prepared to admit. Other and important morbid phenomena, we believe, intervene, which we

hope will be rendered, if not absolutely certain, at least very probable in the course of this essay.

In the expenditure of excitability in any part of the system, we distinctly recognise two principles explanatory of this result, namely, either on the principles of *direct* or *reverse* sympathy in the living solids. That we may not be misunderstood in the employment of these phrases, the following exposition is offered. First, if stimulus is applied to any part, so as to produce therein action superior to health, and that action is kept up for a given time, the expenditure being more rapid than the powers of the system in elaborating excitability, are competent to sustain, the basis of vital action is spent, vital operation ceases, and the parts collapse. This would appear to be expenditure by *direct* sympathy. Second, if the inordinate action in one part, by its increased demand for excitability, subtracts this basis of vital impression from a neighbouring tissue or organ, or directs differently the powers which supply it, the part thus defrauded by disease eventually loses its vitality, and also collapses, but without any previous preternatural excitement. This we would denominate expenditure by *reverse* sympathy.

Such preternatural expenditure may go on to a certain extent and given time, as the disease is more or less violent, allowing still the presence of so much vitality, which if operated on by appropriate stimulus will allow the production of excitement tantamount to the standard of health. If, however, the excitability is expended so far that there is no longer any basis for healthy action, the life of the part quickly departs, and resuscitation is impracticable.

From these preliminaries it may not be inappropriate to remark by the way, that in the treatment of disease two things require primary consideration, namely, to address our stimulant remedies, (for we know of none other,) directly or indirectly, to those parts or organs in a state of comparative torpor; and, secondly, to employ our therapeutic agents before the expenditure so far of excitability as to preclude the possibility of healthy excitement. There appear to be but

two ways of curing disease, viz. either to excite organs inactive by directly stimulating them to stronger action, and thereby lessen on the principles of reverse sympathy the excessive action of organs preternaturally excited, or to employ such stimulants to organs already excited beyond the healthy point, as are capable, notwithstanding the engrossing influence of the previously established morbid association, to produce sanative impression direct, by changing the organic sensibility from the primary diseased condition, into a state *more favourable* to successful efforts on the part of the *vis medicatrix naturae*, to restore the healthy functions, a power without whose efficiencies no disease could ever be removed. So far as we succeed in fulfilling one or both of these indications, just so far, and *no farther*, will be our success in the cure of disease. Digressively we might further remark, that with the character and violence of the disease, whatever it may be, or whether greater or less, there will always be a corresponding variety in the *relation* between the organic sensibility of the vital tissue, thus diseased, and the medicinal agent—but of this more hereafter. Much has been said and written concerning *Idiopathic fever*, and, as we conceive, without the *least* utility, unless by this denomination is meant to designate a certain class of diseases originating in some particular point, as the stomach, the grand emporium of glandular sympathy, and from thence radiating its influence to every part of the system by the consent of parts, or sympathy in the transmission of gastric impression, so as to constitute a general disease. This is, however, far from the meaning usually attached to the phrase “*idiopathic fever*,” and all other definitions we consider totally irrelevant to nature’s copy.

It is remarked by Dr. POTTER, in his annotations on Dr. ARMSTRONG’S invaluable work on typhus fever, (page 32, last edition,) as follows; “That local facilities to the establishment of distension and subsequent inflammation, should be found in a great number of human bodies, cannot be matter of surprize. If we reflect that there are but few that bring into the world with them all their parts, equally perfect and

vigorous, and that on these few, thousands of causes extraneous to the body are constantly acting from their birth, and laying different predispositions, it will not be difficult to explain a notorious fact, that there are so few fevers unaccompanied by local affections." Why then, we would ask, in reference to Dr. P.'s concession, should it be regarded as heterodox in pathology, to maintain that in these weak parts, (from their very weakness more susceptible of derangement,) disease should be radicated? Who those *few* are, whom Dr. P. regards as so perfect, as to be originally alike susceptible of disease, in every part of their physical structure, we are altogether unable to conjecture, and hope to be excused in the expression in direct terms, of our disbelief in the existence of any such beings, until their existence is more fully demonstrated.

In opposition to the opinion of Dr. CLUTTERBUCK and others, who contend for the local origin of all fevers, Dr. ARMSTRONG brings forward, as he supposes, a fact in point, viz.: that typhus fever in many cases begins and terminates, without having any appearances of inflammation on examination after death, and that inflammation is not an essential constituent of that disease. Admitting this to be true, (which indeed we do not doubt,) it does not, we conceive, in the least, tend to invalidate the doctrine opposed. It only proves that the exciting cause or causes of the disease, impressed either so *potently* or *peculiarly*, as to destroy in the tissue or parts primarily assailed, that quality, be it, irritability, sensibility, vitality, sympathy, or whatever physiologists may please to term it, on which the sympathetic principle in the tissue or tissues, enabled it or them to affect, or control, or influence the operations of the sanguiferous system, so as to elicit therein reaction, for in all cases we regard inflammation as directly and alone referable to *reaction in excess*. As a general rule we believe, marks of inflammation will be greatest where the morbid excitant has been most efficient in subverting the healthy secretory action of the part where the fever may be radicated, provided the injured tissue or organ still retains the sympathetic power, so as to enable it to hold perfect and

free intercommunion with the arterial system; provided also that the vascular structure of the part, on which the increased arterial action is *directly* expended, is the same; for when the vascular coat is thinner, the vessels more numerous, or imbedded in loose cellular texture, we would naturally expect, *a priori*, that increased arterial action would produce more extensive marks of inflammation, than where the coats of the vessels thus surcharged, were thicker, firmer, in parts more dense, and consequently endowed with a stronger power of resistance—provided however that such congestion was not produced, as would be incompatible with inflammatory action.

It has already been remarked, that all parts of the system are never so accurately adjusted in point of balance, that each is alike vulnerable to disease; for were this the case, we would be inclined to believe, that disease would rarely have an existence. If then, (as a majority will readily admit,) certain points of the system possess a greater susceptibility to be morbidly impressed than others, it cannot be unreasonable to conclude, that in these parts diseased action should commence and from thence become general, through the operation of the laws of sympathy, radiating disease throughout the system. In short, the same law that is operative in producing at the *close* of disease, such local derangements as dissections demonstrate, will, we conceive, when duly considered, sufficiently develope and sustain the conclusion, that all febrile or other diseases, are, strictly speaking, local in their origin; for were this denied, the unanswerable interrogatory would naturally follow, why is one part more marked by disease than another after death? We take it therefore for granted, that idiopathic fever exists but in name, when by the phrase we refer to a disease *primarily* general.

With respect to the cases reported by Doctor Armstrong, where no marks of inflammation were seen, we have already attributed that state of things to the nature of the impression being such, as to preclude reaction on the part of the heart and larger arterial trunks, commensurate with the exigencies of the case. This impression is so violent and engrossing, that the injured parts or tissues operate more on the system

at large, as foreign irritants, rather than as vital organs, holding vital intercommunion with the arterial system, eliciting its aid to their relief by means of their sympathetic efficiencies, and thus produce more specifically their influence on the nervous system, monopolizing and destroying their excitability directly by morbid stimulation; so that the nerves are not permitted to expend their wonted influence in the ordinary way, by inducing stronger action in the sanguiferous system. In illustration of this position, we would refer to the influence of electricity in those who are killed by lightning. Here no marks of inflammation are to be found—why? Simply because vitality was at once destroyed, and no time was allowed for reaction. The same thing is true to a *certain extent* in some grades of yellow fever, as for instance in those cases called by some the “*walking cases*,” which terminated fatally in a few hours; also in those forms of congestive remittent fever, so common in this country, and which we have frequently witnessed, in which the cold stage predominates from its commencement, and atactic reaction only is developed.

We are persuaded that from a want of paying due regard to these principles, much error in pathology has prevailed, and appearances on dissection, to the exclusion of other circumstances, have been too implicitly received as manifesting the nature and violence of the disease. The greater the inflammation in a part, the more cogent and conclusive is the evidence, that vitality in that part was yielded up but slowly, and that the sanative influence of arterial reaction was at least fully enjoyed. This error we regard as the natural result of an *excessive* fondness in the anatomical amateur for his knife, which leads him to imagine the resources of his favourite science more ample than they really are, and to neglect a due reference to other sources of pathological deduction, which by regarding as collateral lights, would more certainly insure the attainment of correct conclusions. A similar source of physiological and pathological error, is displayed in the efforts of the chemist to incorporate the phenomena of his crucible with those of vitality, thereby at once transcend-

ing the legitimate bounds of an "*exact science*," by attempting to explain the peculiar phenomena of one, which from its very nature can never be *exact*, and obliterating a distinction of the *last* consequence in the pursuit of truth.

In all febrile diseases, the secretory system is more or less impeded in its free and healthy operations. As an evidence that gastric secretion does not continue, the appetite is lost, and the stomach acting agreeably to its capacity, in relation to the performance of the digestive function, very frequently rejects its contents. The bowels are usually torpid, implying a deficiency of secretion from the inner surface of the alimentary canal, as well as a diminution of biliary secretion, so important an auxiliary in the promotion of peristaltic action. The mouth is dry and parched, evincing a deficient secretion of saliva. Perspiratory action is in a great degree suspended, the skin feels dry and husky, or if the cutaneous vessels of secretion continue to act, their product is variable in its sensible qualities from that of health. The usual secretion is scanty and high-coloured. Deafness sometimes attends, an evidence that the ceruminous secretion is deficient in quantity, and that the tympanum, as a consequence of this deficiency, has been divested of a portion of that sensibility so necessary in the auditory function. The liver is generally inactive, and if at times its action is inordinate, the quality of the bile is always vitiated. It may be remarked that in those cases of fever, where there is no evidence of biliary secretion, death invariably ensues. Suspension of more or less of these secretions, is always evident anterior to the development of fever. Dr. Armstrong, in describing the access of typhus, has always noticed the precedence of loss of appetite, torpor of the bowels, dry skin, &c. and indeed as a general rule, accurate clinical observers have universally remarked the existence of these circumstances as characteristic of a departure from health, terminating in fever. We are by no means certain, that next to a change of organic sensibility in the secretory tissue, and the *immediate* species of action dependant on such change, a suspension of the secretory function is not the *primary and essential* link in all febrile diseases.

previous to any increase of arterial action. The arteries in their ultimate distribution do terminate in a glandular apparatus. From this ultimate distribution, the veins receive the reflux blood, and if in either the arterial or venous capillaries, any obstruction takes place, either from the intervention of a foreign body, or the actual condition of the part, it appears to be a law of the animal economy, to throw more blood to the part, because the deranged tissue, in order to relieve itself from encumbrance, requires more vitality, and consequently more blood, as the vehicle of the vitality in demand, as well as an accession of the natural stimulus of the vascular interior—so that from some cause, call it sympathy, dependance of function, or what we please, (it matters not,) the arteries in a part as in simple phlegmon, the heart and arteries in general inflammation, as in fever, are increased in their action. An effort of the *vis medicatrix naturæ*, to remove the disease by endowing the parts with more life, wherein the disease primarily existed, that more efficient resistance may be offered to morbid influences.

In no other way do we consider increased arterial action explicable. In further illustration we refer to the case of a dyspeptic, who has taken a full meal or more food than is compatible with the assimilating energies of the stomach. He immediately becomes pale, and there is an evident recession of blood from the surface. Some degree of febrile action is induced, and there is evidently a determination of blood to the stomach, for no other purpose than by this additional supply of blood to increase the vital energies of that organ, as well as to afford a greater amount of the materials for gastric secretion, and thereby adapt it to the exigencies of the case. This we consider strictly analogous to increased arterial action in fever. In both cases the object is to contribute to increased vital operation in the parts relatively weak and inactive, by adding vitality, which is always added, whether approximated or not, where blood is thrown in any part of the living system. The appropriation of this vitality depends entirely on the condition of the vital forces in the part where it is sent, and the *relation* which the organic

sensibility bears to the blood received. There is an effort of nature to remove the capillary remora, which always necessarily exists when secretion as a *capillary outlet* is suspended by an increase of the *vis a tergo*, or in other words, the increased power of the heart and arteries, is the product of irritation from suspended secretion.

If this increase of action in the sanguiferous system is inefficient in the removal of this primary impediment to free and equal action in a given time, an increase of the remora is the inevitable result, the congestion is greater, and the capillaries becoming preternaturally distended, instead of fulfilling the primary intention of nature in sending the vital fluid to the part divested of healthy powers, the vessels are in reality rendered weaker by this surcharge of blood; for it is remarked by Dr. LUBBOCK, that "a vessel considered as a hollow muscle, can have its cavity enlarged or its fibres elongated in every dimension only by debility, direct or indirect, the effect of a diminution of its tone or density as a living solid, or a separation of the particles composing it to a certain extent." Although increased arterial action is in all cases *primarily* considered a sanative effort of nature, yet from great irritation it may be induced to such an extent as to defeat entirely its own object, and requires to be restrained by blood-letting, or such other means as most efficiently control this excess. On this principle, therefore, the arterial reaction becomes itself an additional source of irritation, and in every instance where it may be presumed from collateral circumstances, that such is the case, we would employ the lancet, and in *none other*, provided that other auxiliary means, tending to restrain this excess would be insufficient without venesection. It may, however, be remarked, that in most cases possessing any degree of violence, blood-letting tends perhaps more efficiently than any other means to facilitate the efficient sanative influence of minor auxiliary remedies, as we have frequently observed very large quantities of cathartic medicines fail to produce the desired effect until venesection was resorted to, on which a free and copious catharsis was immediately induced.

By lessening the volume of blood, we thereby subtract a certain quantum of stimulus from the heart and arteries, as well as diminish the amount, which would otherwise be sent to the already too much loaded capillaries. By relieving in this way the smaller vascular terminations, we afford them an opportunity to react and resume their wonted functions of secretion and circulation, and indeed, as we have already hinted, the restoration of secretion is the primary object to be effected by changing the organic sensibility of the secretory tissue, for we are inclined to believe that febrile disease is radicated in all cases in that tissue.

But this is not all—we derive further proofs of this being indeed the pathology of fever, from the *modus operandi* of the therapeutic agents employed for its removal. We believe we hazard nothing by the assertion, that no medicine given during fever is of the *least* advantage, if it has not a tendency either directly or indirectly, to restore the function of secretion. An emetic when given, at once changes the organic sensibility of the stomach, and excites it to the performance of the function of gastric secretion. If a person be slightly indisposed, with loss of appetite, cardialgia, acid eructations, and sympathetic head-ache, &c. how soon after the operation of an emetic does his appetite return, dyspeptic symptoms vanish, and digestion before feeble, now goes on well—to what shall we attribute this change? Simply to the restoration of healthy gastric secretion, produced by the therapeutic agency of the emetic. Emetics are not however confined to the stomach in their sanative influence. They act through the sympathies of that organ on the system generally. Under the influence of an emetic, the skin becomes moist, because sympathetic secretory dermoid excitement is produced. There is an abundant flow of saliva, and frequently a copious expectoration from the bronchial tubes, with a corresponding discharge from the trachea and larynx, implying an increased secretion which has been excited in those organs.

From this latter circumstance may be explained the very superior efficacy of emetics in pneumonia biliosa, asthma, &c.

Minute portions of emetic medicines act on the same principles in the production of sudorific effects, and under certain circumstances, we are persuaded that minute portions of tart. antim. et pot. are far preferable to most other medicines, in certain states of febrile action of the stomach and secretory system in general, it must however be remembered, that violent arterial excitement is not a state where this mode is of much, if any advantage.

The "*under dose*," as it has been termed, has, under certain circumstances, a wonderful influence in reducing the force, tension, and frequency of the pulse, which phenomenon we are unable to explain on any other principle than the following, viz. that such small portions act almost exclusively on the secretory tissue, changing its organic sensibility, and exciting it to the performance of its proper function, while the nauseating doses of Cullen, or a full emetic, involve the *muscular irritability and animal sensibility* so much, that the beneficial influence, which might otherwise accrue in secretion, is prevented by counter-irritation. On the same principle may be explained the superiority of the pulvis Doveri over many other diaphoretic compounds. The nauseating property of the ipecacuan. is removed by the opium with which it is united, while its diaphoretic powers are not sensibly diminished, at the same time the ipecacuan. so controls the opium, that constipation or suspension of secretion, does not follow their joint exhibition.

It is a well known fact, that violent exercise after a full meal very much impedes digestion, which is readily explained by the appropriation and expenditure of sensorial power in muscular action, which subtracts in an equal and direct ratio, sensorial influence from the stomach and digestive viscera generally; gastric secretion is greatly suspended, and the whole digestive process retarded. If after copious alimentary repletion, we remain quiescent, without either mental or corporeal exertion, digestion goes on well, because the concentration of vital energies in the digestive organs is greater, and secretory operations more perfect; and this we conceive is precisely the principle on which such beneficial

effects are derived from the "*under dose*" of tart. antim. et pot.—It has been alleged, that an insensible dose must necessarily produce *but* insensible effects—this, however, is fallacious. There are other *media*, besides sensation, through which we can make decisive sanative impression, in confirmation of which truth, innumerable examples might be given, but which we deem unnecessary on the present occasion.

Cathartics also operate directly on the secretory tissue. By their agency more copious secretion is elicited from the whole alimentary surface, and the liver sympathising with the alimentary impress, performs with more rapidity its function of biliary secretion, the kidneys become additionally active, and frequently their operation is followed by a moisture of the surface generally. The *modus operandi* of a cathartic, is nothing more than simply promoting secretion, and at the same time stimulating the bowels to more rapid peristaltic action.

Diuretics act on the secretory tissue of the kidneys, more especially, and to their agency in eliciting venal secretion, more copiously, is entirely referable their sanative influence.

Epispastics produce secretion, but not from the dermoid tissue alone. The consent of parts, which exists between the surface of the body and the stomach, liver and alimentary canal, enables the skin when under the influence of an epispastic, (provided the internal excitement is not too great, in which case, a blister should never be applied,) to subtract from the morbid irritability of those internal organs, and which operates as an obstacle to their free and natural action. Thus additional facilities are afforded, and these parts are enabled more or less to resume their wonted functions, and in this way remediate impression is made. It will however be remarked as a fact of much importance in the practice of medicine, that the indiscriminate employment of blisters is often exceedingly pernicious, and that as a *general*, if not an *invariable rule*, they should never be employed in acute inflammation, until the *acme* of inflammatory action is past. If after a blister is drawn, it becomes highly inflamed, and ceases

to discharge freely a bland serous fluid, it may be regarded in general an incontestible evidence, that its employment was premature, and not indicated at the period of its application. A medical practitioner may display as much skill and practical tact, in selecting the precise time when the employment of blisters is indicated, as in almost any thing else appertaining to the exercise of the profession. If applied too early, instead of operating beneficially as counter-irritants, and changing by sympathetic influence the organic sensibility of those parts they are designed to relieve, they only add to the aggregate amount of irritation present, and while the physician may think he is acting fully up to the motto, "divide and conquer," he is in fact embodying the enemy in more solid phalanx, and rendering every moment narrower the *only defile* by which a retreat can be at all effected. If their employment is too long delayed, no advantage is derived from their use, either because of the previous departure of excitability in the parts to which they are applied, or, a destruction of the wonted sympathetic intercommunion between different parts of the system, which ordinarily sympathise, and on which their sanative efficiencies are *essentially* dependant.—But, to return.

Our evidences in favour of this view of things in relation to the pathology of fever, are not merely sustained by the arguments drawn from the symptoms which mark the rise and progress of the disease, and the *modus operandi* of remediate agents. Although, after what has been said, further arguments would seem unnecessary in the establishment of our position, additional confirmation is not wanting in the phenomena of convalescence. In every instance of recovery from fever we see as an evidence of returning health, the restoration of the various secretions; indeed, where no material amendment has taken place, we are enabled to predict with certainty its approach from the moist condition of the tongue, fauces, and mouth, generally regular and equable moisture of the skin, equable diffusion of caloric, (now regarded by the best physiologists of the age as a secretion,) more copious se-

cretion of urine, of bile, as manifested in the character of the alvine discharges, and lastly, the return of appetite, dependant on restored gastric secretion.

If this view of febrile disease be correct, it clearly follows, that whatever remediate agent acts most efficiently in changing the organic sensibility of the secretory tissue, and in restoring or regulating, as a native result of such change, suspended or vitiated secretion, either directly or remotely by sympathy, affords the best prospect for the restoration of equality of excitement, which is health.

In the treatment of every disease it ought to be our *first object* to ascertain what are the inactive tissues or organs, and what are those preternaturally excited; and having ascertained this, our next should be to consider our means of restoring action in the one, and diminishing it in the others, or by locating disease where it *is not*, subdue it where *it is*, on the principles of reverse sympathy or counter impression. Although there is considerable unanimity in the *modus operandi* of medicines, regarding them as tending to the *same final object*, yet there is no truth better known or established in medical science, than that the exhibition of the same remedy will produce very different effects in different individuals, or at different times in the same individual. The effects which in one case would be of the happiest kind, would in another be exceedingly different, and productive of the most serious injury. The difference of effects so often observed by medical practitioners, may be referred to two causes, namely, the state of the organic sensibility of the part which becomes *primarily* the recipient of the sanative influence *in relation* to the sanative agent; and, secondly, the *relation* in which the part sanatively impressed stands to the other parts of the system on the score of sympathetic intercommunion. We might add a third cause of variety, viz. the difference of amount in exhibition *in proportion* to the excitability present.

As in the production of disease, the first link is a change in the organic sensibility of a part or parts of the system, so in the restoration to health, the primary step is to effect a

new change in this organic sensibility so completely counter to the primary diseased state as to supplant it entirely. Not, indeed, that we can by medicines, produce a *healthy state* of the organic sensibility; this is impossible, and can only be done by nature, for all indigestible substances not wholly inert, have a direct tendency when applied to the body in health, to produce disease, and if, as is generally admitted, life be a unit, it could not be otherwise in disease. All we do by the employment of therapeutic agents, *properly so called*, is to constitute a state of organic sensibility *more in relation* with the wonted healthy state, than that in which the *primary* diseased action is manifested, thus affording the vital elasticity additional facilities in the establishment of health. In this sense only, therefore, do we use the phrase *sanative impression*, when applied to the effects of medicinal agents. In accordance with these views, as a general rule, we would regard mercury in its various forms, but more especially the *Protochloride*, (calomel,) as perhaps of more value in fever, judiciously administered, than all other remedies beside, in the long list of therapeutic agents, and for this plain reason, viz. that of its extensive and potent influence in exciting the functions of the glandular system, at the same time, (like the under dose of tartar emetic,) without involving the animal sensibility or muscular irritability to any great extent. Indeed, so marked is the latter circumstance, that a late intelligent writer on yellow fever, (Dr. WASHINGTON,) speaking of its effects when given in some cases which he was called to treat, attributes to it an anodyne effect. The same thing is noticed by Dr. Johnson in his remarks on the dysenteric variety of fever, as also almost every attentive observer with whom we have conversed, who has used this remedy largely. It appears to differ from most, if not all other remedies, not merely in making impression with more certainty, and promoting secretion with more permanence, but also by eliciting a secretion more specifically *sui generis*, uniform, and universal, than any other remedial agents with which we are acquainted, and, at the same time, when judiciously administered, producing less gastric or constitutional irrita-

bility. To this power of radically, uniformly, and universally changing the secretory action, do we wholly attribute its superior sanative operation in the cure of syphilitic diseases.

It may probably be asked, in reference to the foregoing views, if fever is the result in all cases of irritation from suspended secretion, and if mercurial preparations tend to promote secretion, how does it happen that mercurial fever is induced? To this it is simply answered, that mercurial fever never is produced but from the indiscreet use of mercury—but, that it frequently has been, and is produced, is admitted. In all cases, however, this mercurial fever is a secondary affair, and is not produced as the *primary* effect of the exhibition of the mercurial agent. Secretory, as well as all other organs, are competent to sustain *only* a certain amount of excitement, and if taxed beyond their power, resident in excitability, they must necessarily succumb from the expenditure of this excitability, and become inactive in a *direct ratio* as the demand for *supervital action* was exorbitant, and when a state of inaction is in this way induced in the secretory tissue of any important organ, as for instance, the stomach; it is just as reasonable to conclude, that such obstruction or suspension will elicit arterial reaction for its removal, as in any other case of inaction from a different cause—hence mercurial fever. It is important to remark, that small portions of calomel, (protochloride,) or blue pill, (protoxyde,) continued for a considerable time, act merely on the alimentary surface *with certainty*, because the gastric impression is so small that the stomach is not speedily roused to call into sympathetic participation distant organs; and, in the meantime, its own secretory energies become ultimately so impaired that it is compelled to sink into partial inaction, which is only removed, and the energies of the stomach restored, by arterial reaction. If in such case the mercurial excitement was transferred from the stomach to other secretory organs by the exhibition of a large dose which would immediately produce an extended sympathetic impress, the primary gastric excitement would be diminished, and in confirmation of this view,

we have witnessed several cases where, in salivation attended with mercurial fever from small portions of calomel or blue pill, the febrile symptoms, the soreness of the mouth, and discharge of saliva, were greatly lessened by several large doses of calomel exhibited in quick succession. From these views will at once be seen the inferiority of the usual "piece meal" method of giving mercury to cure Syphilis. Two evils unavoidably attend this mode, viz. 1st. Uncertainty as to making distant impression on the secretory tissue, from sympathetic association with the alimentary impress, so important in the subversion of *that kind* of secretory action, *on which* the perpetuity and extension of venereal chancres *essentially* depends. 2d. The danger of inducing mercurial fever, from so great a topical expenditure of the secretory excitability of the stomach; and, we might add a third evil, namely, that the cure is invariably more protracted.

Indeed this plan we are inclined to regard as a relic of the "foul tide of humoral doctrines," which is predicated on the vague supposition, that mercury must be *gradually introduced into the circulation*, therein to eradicate the syphilitic virus, instead of considering syphilis as a disease of the secretory solids, to be cured only by a change in secretory action, dependant on proper sympathetic association of those solids. But as this subject has been ably and judiciously considered by Dr. CARTWRIGHT, of this city, we forbear for the present further comment.

The influence of mercury when taken internally or applied externally on the different secretions, as that of the stomach, liver, salivary glands, is too well known to require a particular description here. On this principle, therefore, of its specific action on the glandular or secretory system, changing organic sensibility and restoring the suspended or deranged secretory function, and thereby diminishing arterial reaction, by thus removing the cause on which it depends, we would explain how advantages are derived from its use in febrile diseases.

Although from the views here presented we would use mercurial preparations freely in most cases of fever, we

would by no means expunge a variety of other remediate agents, but would retain many as useful auxiliaries. Nay further, we are prepared to admit that under certain conditions of high excitement or of atactic reaction, mercurial preparations are by no means so useful as other means in our power, and that the lancet, emetics, the cold or warm bath, (according to circumstances,) cathartics, other than mercurial, &c. should be premised in order to institute a *due relationship* between the organic sensibility of the system and the remedy in question, but we do still contend that where this *due relationship* does exist, no remedy promises as much as mercury. To remove morbid matter with despatch, in cases where its presence was indicated, or because of other indication which its employment would fulfil, and for the production of remediate impression to a certain extent as well as with a view of removing all intervening obstacles to the ready contact of appropriate remedies to the vital surface, we would employ emetics and cathartics of a different order, also according to circumstances, diaphoretics, sudorifics, diuretics, the warm or cold bath, epispastics, sinapisms, &c. and should there appear to be immediate danger of the vital powers in the aggregate sinking below the "*secreting point*," we would employ stimulants of the permanent and diffusible kind, in conjunction with mercury, until secretory action was properly established. The various circumstances under which these means must each be employed in turn or in conjunction, are too numerous to be here detailed, and must be left to the good sense and discriminating judgment of the practitioner, regulating their exhibition on general principles.

Much discrepance of opinion has obtained amongst the members of the medical profession, in relation to the mode of exhibiting mercury, arising in some measure, most probably, from the empiricism which has marked its administration. During the existence of the epidemic in this city through the summer and autumn of 1823, the popular practice with many physicians, as we have been informed, was to commence the treatment with the exhibition of calomel in

conjunction with opium, so as to prevent its very free operation on the bowels, and with a view at the same time to the production of ptyalism. This plan, with some unimportant additions, was pursued throughout the disease, and if the patient died he left behind him the *competent consolation* that he made his exit, *secundum artem*. The result of this practice was that an unusually large proportion of those who were the subjects of it died, nor is it at all wonderful that such should be the result, since in a *vital relation* these remedies are totally incompatible.

Calomel *excites* while opium *suspends* glandular secretion. For this very cogent reason, we would always avoid the employment of opium in fever, unless simply to obviate some very troublesome symptom, such as extreme irritability of the stomach, precluding the exhibition, or retention of medicines, or in case of such hypercatharsis as would induce dangerous prostration if suffered to continue, where it becomes for the time a needful auxiliary; but should be discontinued instantly so soon as the indication is fulfilled. In that state of fever where the living energies are below the secreting point, the use of opium with other stimulants may sometimes be useful, but where this is not the case, we would, except in the cases above specified, altogether interdict the employment of this medicine in fever, high authority to the contrary notwithstanding.

Some practitioners when they wish as a dernier resort to enjoy to the full, the beneficial effects of mercury in the cure of fever, are in the habit of giving calomel or the blue pill, in the dose of one, two, or three grains, every hour, in the hope of producing salivation, and when mercurial fetor of the breath, soreness of the gums and salivary discharge appear, they discontinue the exhibition of the remedy, under the confident conclusion, that their patient is entirely safe, believing that if the disease has not yielded, it soon will. In a majority of cases, most probably the conclusion is just, and the termination will be favourable, but in many it will be otherwise. We have ourselves witnessed many cases which terminated fatally, even under these circumstances from the con-

tinuance of fever. The only solution we offer for this fact is, that the mercurial impression was not *general*, but *partial* in its character—that the mercurial influence in these cases, was principally expended on the salivary glands; and hence we conclude, that soreness of the mouth is far from being an indubitable evidence that systematic impression is made. Illustrative of this suggestion we cite a case, which we consider directly in point, detailed in our hearing by Professor DUDLEY of Transylvania University several years since in his lectures.

A man labouring under an aggravated form of lues venerea, after having applied to many members of the profession for medical aid in his case, but without deriving any benefit, although mercurial preparations had been repeatedly employed in the usual way, at last made his case known to Professor Dudley, and in giving a history of his disease, with the means employed for its removal, he stated, that when mercurial preparations were either taken internally, or applied externally, with a view of inducing salivation, they invariably acted as active diuretics—no systematic effect was produced, and the disease continued unchecked in its ravages. After Professor Dudley had ascertained unequivocally that such was the effect of mercury in *small* portions, or in the form of ointment, with a quickness and accuracy of practical tact for which that gentleman is truly remarkable, he adopted a new course. Calomel was now given in large doses, so as to act on the bowels freely. By this means a much wider range of glandular sympathies was embraced in mercurial impression, the system was brought under mercurial influence, and the disease was speedily cured. In this way we can readily conceive of a mercurial action being induced in the mouth, without any proper systematic effect, and consequently a person labouring under fever, may derive no benefit from the salivant impression thus made. We are, moreover, fully convinced, that many cases of syphilis are pronounced incurable by mercury, after salivation has been induced and kept up for months, merely from the gross mistake, that salivation is an infallible evidence of systematic

impression. If in this case, so successfully treated by Professor Dudley, the kidneys were preternaturally excited from calomel taken into the stomach, to the exclusion of any excitement in the salivary glands of a mercurial nature, we know no good reason why the salivary glands might not be mercurially excited from sympathy with gastric impress, to the exclusion of mercurial excitement in the kidneys and most other glandular structures throughout the system.

With precisely the same views as large doses were given in the above case, we would, as a general rule, employ calomel in as large quantities as could be borne, without expending too far the excitability of the stomach; nor need hypercatharsis be feared, for it is a fact well known, that after a certain amount, calomel, when increased in the dose, operates less freely as a cathartic, and we would greatly prefer arresting hypercatharsis which might occur in fever, by increasing the size of the portion of calomel given, to combining opium with a smaller dose. This practice is further justified by the results of the employment of the tart. antim. et pot. in immense doses, by the Italian and some of the French physicians, with a view to its contrastimulant influence. From these it appears, that this medicine, when given to the extent of one and an half drachms in twenty-four hours, was productive of little or no sensible evacuation, which a more sparing use of the remedy could not have failed to produce*—and that, instead of augmenting the irritability of the system, it was productive of a very perceptible diminution. In the latter stages of fever particularly, we would use calomel freely and regularly, with the view of keeping up the action of the bowels, and at the same time to increase to the proper point, that impression which it is its property to excite, and as a *collateral* evidence that efficient systematic impression had been made, we would in all desperate cases wish to see ptyalism, as well as other evidences of mercurial influence. By the way, it may be remarked, that salivation produced by the exhibition of calomel in large portions, is much more to be depended on, as an evidence of systematic

* See the Memoir of Mr. Delagarde.

impression, than when its production is referable to the administration of mercurial preparations in minute doses.

As an objection to the use of mercury in fever, it has been urged that we cannot produce ptyalism until the fever is subdued. This is certainly true, in every instance where the mercurial affection is *general*, but does not, nevertheless, tend in the least to prove the impropriety of the plan proposed, for we do not regard the evidences of general mercurial excitement, as indicative that mercury *will* subdue the disease, but that it *has* done it. A great deal has been said against the use of mercury, because of the pernicious effects which have attended its abuse. To this no formal reply is necessary. It is a *common place* argument, and may with equal propriety be urged, not only against every other article of the *Materia Medica*, but even the common articles of diet, because we find occasionally an epicure with a shattered constitution, from the undue indulgence of his appetite.

Although we readily admit that mercury has been often abused, we cannot concede that injurious consequences have followed its exhibition so frequently as has been alleged, and we are decidedly of opinion, that much of the contrariety of opinion which has obtained, between medical gentlemen of high and low latitudes, might be readily reconciled by a simple reference to the difference of type in disease, dependant on difference of climate, producing difference of temperaments, as well as difference of predisposing and exciting causes. In the south, abdominal temperaments predominate; in the north, thoracic, and a corresponding difference of type in the development of disease is manifested. In low latitudes, abdominal, and particularly gastric and hepatic derangements, with but little comparative reaction, is the general form of malignant fever. In the north, the abdominal viscera are also more or less affected, but in consequence of a much greater thoracic diathesis, diseases are much more inflammatory, and arterial reaction is more fully developed—hence the exhibition of mercury is not so generally indicated, and its use in northern climates to the same extent, and with the same freedom, as tropical climates fully justify, would be attended with the most bane-

ful consequences, for the same remarks made in a previous part of this essay, concerning blisters, will apply to a *certain extent*, with equal propriety to the exhibition of mercurial preparations. In diseases of violent *arterial* excitement, there is a want of relationship between the organic sensibility of the system, and the mercurial agent, because of the counter-irritant and engrossing influence of this excitement, and if mercury is exhibited whilst this state of things exists, it but adds to the aggregate amount of irritation present, and should therefore in violent inflammatory diseases, be preceded by the free use of the lancet, emetics, &c. when it may then be used with the greatest benefit. In diseases of the north, although the excitement in the arterial system is greater, yet diseased action is less unequally distributed, and the citadel, although assailed with violence, in the aggregate, yet the enemy's forces are so divided, that from *this very division*, the assault is less effective, and the siege, if not wholly unsuccessful, is necessarily protracted. This is well known to be literally the fact with relation to fevers of the north, as a general rule, sometimes continuing ten, fifteen, or twenty days, or in some cases even a month and upwards, without any material abatement, while the fevers of tropical regions run their course in a few days, often in a few hours. To use our former simile, in the fevers of the south, the enemy concentrating his forces more at one point, attacks with more desperation and effect, and either carries the fortress by storm or abandons the siege. It will, however, be remembered, that *the kind* of excitement which predominates not being *arterial*, the free employment of mercurials is admissible.

Although the secretory action in the abdominal viscera in southern diseases, is probably more suspended or perverted than in northern, it does not follow that arterial reaction will be developed in an *equal ratio*; for along with this suspension of secretory action in malignant cases, there is also great abdominal congestion, which disqualifies the abdominal organs to hold such intercommunion with, and control over, the arterial system, as to elicit its aid: and further, the pre-

dominant temperament is unfavourable to such efforts, being not *thoracic*, but *abdominal*.

In diseases of the north, when bleeding and other depletory measures have been duly employed, the excessive arterial excitement is removed, and mercury is then enabled to assert its empire in the system, because no longer prevented by the counter influence of arterial irritation, which while present in a *certain amount*, wholly inhibits the organic sensibility, being *in relation* with that remedy; but in southern fevers this *incompatible amount* is but seldom found, and rarely so great as to forbid the employment of mercury, as experience abundantly testifies. On this difference of influence of different latitudes may be based an exposition of the advantage of a removal of individuals labouring under every species of phthisis, (except the dyspeptic kind, which is somewhat doubtful and never so advantageous,) from high to low latitudes, thereby locating, by change of temperament, disease or diseased predisposition in the abdominal viscera, and diminishing on the principles of reverse sympathy, thoracic disease. On the same principle should the dyspeptic of the south seek an asylum in a colder climate for the production of healthy balance in the vital functions, by inviting thoracic disease, that it might subdue on the principles of reverse sympathy abdominal or digestive derangement.

Much has been advanced by various writers on the subject of the remissions and intermissions of fever, but without any definite or generally received conclusion as to the truth of any of the different theories which have been exhibited, so far as we are informed. Amongst others one opinion has been, perhaps, the most prominent and warmly advocated, viz. that all fevers do by necessity consist of a succession of paroxysms, and that the intermissions or remissions are more or less distinctly marked, according to the violence of the disease or the peculiarity of the case. This opinion, for reasons implied in the following views, is variant from that which on this subject we have adopted.

There appear to be two ways in which either a total or partial suspension of febrile action can occur, viz. 1st. a com-

plete intermission may take place when secretion is completely restored, because arterial reaction is no longer elicited by its suspension. If this renewal of secretion is *in excess*, a consequent corresponding inaction will necessarily follow, in accordance with that law of our nature, which subjects to weaker action from inordinate excitement. This partial torpor, or *deficit* of action, differs probably in no material point from the suspension of secretory action, on which the primary febrile development depended. From the embarrassing effects of this suspension of a process so important, nay so essential to the well being of the individual, nature after a given time endeavours to free herself by calling to her aid, with increased energy, the sanguiferous system, in the form of arterial reaction, and on the same principle as in the first paroxysm, a new pyrexial period is developed.

In remitting fever there is never, whilst the disease retains its proper characteristics, a complete restoration of secretory action, and the remissions which occur appear to us referable simply to a *partial* removal of that process. In continued inflammatory or synochal fever, there is little if any restoration of secretion, and consequently little or no abatement in the violence of the disease: and in all febrile diseases, (unless from absolute prostration as in certain cases of malignant congestive fever,) the remissions or intermissions will be found to bear an exact correspondence to the more or less perfect re-establishment of this function.

On these principles we can readily explain the periodical recurrence of intermittent; but the fact of the *regularity* of these recurrences requires for its exposition some additional aid. This aid we believe we can command. It will be remembered, that during the day, with most individuals, sensorial power is freely expended, while the night is selected as the period of re-accumulation, or of supplying the waste of the previous day. Just in proportion as this power is abundant will be the efficiencies of the system, not only in the preservation of healthy balance and the performance of its varied functions, but also in resisting the influence of deleterious agents. On the other hand, if the expenditure of sen-

sensorial power is considerable, the energies of the system are less, and if a morbid impression is present it will be more efficient in subverting the healthy balance from the very circumstance of resistance being less.

In the early part of the day the expenditure of sensorial power is less, considering the *ability of the system to expend*, than in the evening, because the accumulation of the foregoing night has amplified abundantly that power; and just *in proportion* to the rapidity of expenditure, compared with the *capacity* of the system to expend, is the development of fever.

These principles, as a general rule, are in strict accordance with matters of fact, for in a vast majority of cases the febrile attack is sustained in the after part of the day, and whether they appear at this period primarily or not, whether of a remittent or intermittent type, they usually rise more rapidly and extensively in the evening, and greater inequality of excitement exists than towards the middle of the night and morning, selecting that time for the remissions or intermissions when the vital operations were wont to be in favour of sensorial accumulation, and consequently increased power to restore and sustain healthy balance; also in connection with this the arterial reactive effort having been more or less successful in the restoration of that function, on whose suspension its original production depended, arterial reaction yields more readily, because the circumstances demanding its continuance are less urgent.

Arterial reaction *in excess*, is an evidence of weakness in the systematic aggregate, and not of strength, hence when sensorial power is least, and there is no restoration of secretion, this excess is greatest. When, therefore, arterial reaction is too violent, and we cannot excite organs correspondingly inactive, as equal excitement is the great object, we lessen the amount of the circulatory mass, which by its accession in excess, (as in inflammation,) but tends to increase and perpetuate the inaction of organs it was originally designed to relieve by blood-letting, on the principles already detailed in this essay. that all parts, although weakened, may

go on harmoniously together in equality of action, that *pari passu* the pristine energies may be restored.

In intermitting fever, if the secretion is greatly in excess, the corresponding inaction which necessarily follows *more suddenly* induces a returning paroxysm, as in quotidian, which will only recur at the period of the succeeding day, when the disparity between expenditure of sensorial power and the capacity to sustain such expenditure is greatest, and consequently the most favourable for its development. It becomes necessary to remark, however, that from the influence of diseased action, or some peculiarity in collateral causes, the usual habit of nocturnal sensorial accumulation, and daily expenditure may be subverted, and consequently the development of fever, in relation to *the time of day*, may fail as above suggested, but nevertheless, the same relation as to sensorial expenditure and re-accumulation will remain; hence such cases are to be considered *merely* as exceptions to a general rule relative to the time of day.

If the secretion is less in excess than in the case above supposed, the consequent inaction will also be less, and the exigency will not be so great as to elicit at so early a period sanguiferous influence in its behalf; and consequently the paroxysm will not recur for a day longer, and at that period we have a febrile development in the form of tertian. In the same way, *a priori*, and on the same principles, would we explain the supervention of the quartan form; in all the cases supposed, however, the development of fever will take place when the condition of sensorial power is such as to afford the greatest facilities to undue febrile reaction. Although in remitting fever there is never whilst it continues a complete restoration of secretory action, and consequently no perfect intermission, yet the exacerbations and remissions appear to be governed by the same laws as intermittent.

2d. If the primary inaction is great and general in the secretory tissue, yet not so great as to be incompatible with the existence of sympathetic intercommunion between the inactive tissue and the sanguiferous system, arterial action will be well developed, and continue vigorous for a time, but if no

secretion is effected, the increased volume of blood will but augment the remora, at the same time distending and weakening the capillaries to which it is sent immediately connected with the secretory tissue, and the secretory organs are deprived by this accumulated oppression so far of their vitality as to be no longer able to hold proper sympathetic intercommunion with the sanguiferous system; consequently its efforts are no longer in demand, and a gradual subsidence of arterial excitement takes place. After a time, the capillaries no longer sustaining embarrassment from arterial reaction, gradually regain to a certain extent their former energy, the superabundance of blood which they were unable to appropriate advantageously, is taken up by the veins; there is a re-accumulation of sensorial power, sympathetic intercommunion with the sanguiferous system is re-established, and a new paroxysm supervenes. This, we apprehend, is the true state of things in those malignant forms of intermittent fever, where there is a distinct apyrexial period, yet where the patient dies in a few paroxysms. There is also a form of fever, not uncommon in this country, where no arterial reaction of any appreciable amount is at all apparent; the cold stage continues, and the patient invariably dies, if arterial reaction is not ultimately produced. This we consider explicable on the principle that the exciting cause, be it what it may, (for etiological investigation is foreign to our present purpose,) impresses the secretory tissue in such a way as to divest it of the power to sympathise efficiently with the arterial system, and the sympathetic association being severed, the dissolution of the patient soon follows.

On these principles, therefore, of, on the one hand, restoration of secretion; whether more or less in excess, and on the other, where congestive or nervous oppression, with suspended sympathetic intercommunion and consequent intermission in sanguiferous action, proceeding in either case with a due reference to intermediate conditions of secretion and oppression, we may account for all the varieties in febrile type, from the *febricula* of RUSH, to the most malignant fever on the globe.

By way of conclusion, we proceed to make a few remarks on the most probable *punctum saliens* of fever.

We have already advanced the opinion, that anterior to the development of arterial reaction, the glandular or secretory tissue is *necessarily* implicated. According to the usual definition of physiological writers, the office of a gland is to secrete fluids from the blood for the purposes of the animal economy. Agreeably to this definition, the stomach may with propriety be regarded as glandular, since its office is to secrete the gastric fluid, so important in the animal process of digestion. This organ, and the alimentary canal in general, stand as we conceive, by virtue of their functions and *relative* importance in a glandular point of view, in a similar relation to the secretory system, as the brain and spinal marrow do to the nervous system generally. As the nerves, as a general rule, retain their healthy functions entire so long as the integrity of the brain and spinal marrow is preserved, so the secretory system, as a general rule, will be healthy in its operations whilst the functions of the stomach and alimentary canal remain unimpaired. As in injuries of the nerves but little inconvenience is sustained in the system at large, if there is no cerebral or spinal disease; so in injuries of any part of the secretory tissue but little systematic or constitutional defection appears, so long as the gastric and alimentary functions in general continue healthy. In all cases of fever denominated symptomatic, we find loss of appetite, constipation of the bowels, and derangement of the chylopoetic organs generally, as the precursors of febrile excitement; and in the train of symptoms which indicate convalescence, the removal of these amongst the most essential and prominent; a good evidence, as we conceive, that the stomach was deeply implicated as an *essential* link in the establishment of fevers. Indeed we consider it as almost susceptible of mathematical demonstration, that there is *never* a general development of fever without the functions of the stomach and alimentary canal; especially the *prima via*, as glandular organs, being evidently more or less suspended or perverted or both.

Under this view we are disposed to believe, that the ali-

mentary secretory tissue, but more *especially* the stomach, is invariably the *punctum saliens* of fever of every kind, when by fever we mean a general disease of the glandular system, attended with arterial reaction. That primary morbid impression is *always* made on the stomach, we would by no means contend—the reverse is certainly in many cases true, probably in most instances where the denomination of symptomatic fever has been given by nosological writers; but, in the ordinary fevers of the summer and autumnal seasons, we are fully of opinion, that in most instances the exciting cause makes its primary irritative impress on the alimentary surface. This, however, is no new view, nor is it important to the attainment of our present purpose. Pathologists may locate their *primary* morbid impression where they please; this much is certain, that without the stomach being implicated as an *essential primary link*, in febrile development, no fever ever exists, and that if the healthy gastric functions are not restored, the disease continues unsubdued. As, therefore, derangement of the stomach constitutes an indispensable link in the formation of every fever, we consider it in accordance with sound pathology, and a philosophical view of indication, to treat all fevers as diseases of gastric origin.

Wherever the primary morbid impression may be made, or to whatever extent may be its violence, the stomach, as standing at the head of the glandular system, and controlling as a head the glandular whole, must be brought to co-operate in morbid action, and by a reflex influence to derange secretory operations generally, in order to elicit for the relief of the system, arterial reaction, or fever properly so called, cannot exist. As well might we suppose that voluntary muscular action could occur without the brain, as to suppose general arterial reaction could be elicited, without derangement of the stomach as a secretory organ.

In thus regarding fever *in its origin* as a glandular disease, and the secretory tissue of the alimentary canal controlling as a head, the whole glandular apparatus, and as being the *essential punctum saliens* of that malady, *considered as fever ipso facto developed*, there is a beautiful display of the eco-

mony of nature and the resources of our art, since by addressing our remedies to the alimentary canal, we strike *directly* at the root of disease, which when destroyed, necessarily ensures the destruction of the branches, and, *pari passu*, a restoration to health. We are entirely of opinion, that the most rigid analysis of the *modus operandi* of remedial agents in fever, will fully justify the conclusion, that all remedies not directly addressed to the alimentary canal, owe their beneficial influence entirely to their impression being made on organs, which, when thus impressed, have the power to influence sympathetically and efficiently the alimentary surface, inducing therein a state of organic sensibility *less morbid*—thus making nature *relatively* stronger, by substituting a weaker enemy to oppose, and in no other sense do we believe in the restorative efficiencies of any medicinal agent, *properly so called*, whatever.



ART. VII. *On Chorea Sancti Viti*. By WILLIAM ROBERT TAYLOR, M. D. of Virginia.

THE disease which is intended as the subject of this paper, derived the name of St. Vitus's Dance, (by which it is commonly known,) as HORSTIUS tells us, from the following circumstance.

There were some women, who once every year paid a visit to the Chapel of St. Vitus, near Ulm, and there exercised themselves in dancing day and night, till they fell down like those in an ecstasy. Thus they were restored till the return of the following May, when they were again seized with a restlessness and disorderly motion of their limbs, so as to be obliged, at the anniversary feast of St. Vitus, to repair again to the same chapel, for the sake of dancing. From this tradition, a sort of convulsion to which girls are principally subject before the eruption of their menses, took its name.

This disorder, however, thus described by Horstius, is very different from what is now called St. Vitus's dance; inasmuch

as the latter proceeds from other and different causes, and attacks indiscriminately the male as well as the female sex, though the female are most frequently its subjects, from the circumstance of their more tender and delicate constitutions. Some writers say it is a paralytic affection; SYDENHAM says it is convulsive; others say it is both paralytic and convulsive. CULLEN calls it chorea, and ranks it in his class *Neuroses*, and order *Spasmi*.

Chorea is peculiar to no country, for instances of its occurrence are recorded by writers in almost every part of the world. Our own country presents us with a vast field for its ravages. Till within a few years, it was considered as a most formidable disease, from the erroneous theory of its origin, and the consequent improper treatment employed in its cure. Indeed, so little was known as to the nature of this disease, that systematic writers have barely noticed it, and practitioners have regarded it with great indifference. Why this disease should have attracted so little the attention of those practitioners, who have shed such lustre on the science of medicine, and such imperishable renown on their own names, by their minute investigations and their devotion at the shrine of research, is a circumstance of much surprise; and the more so, when we consider the obstinacy of its course, the distresses to which it reduces, and the danger in which it sometimes involves those whom it may attack. Sydenham described this disease upwards of one hundred years ago; and writers, till the time of HAMILTON, seem to have done little more than hand down to us, the description which they copied from preceding authors. Thus we may suppose, that few, if any improvements were made in the theory or practice of this disease. Cullen, after cursorily noticing some of the symptoms, attributes the convulsions as dependent, in a great degree, on the will; and that the disorder is increased by the patient indulging in the propensity pleasing to himself, and as exciting the surprise and amusement of those about him. His words are as follows: "It appears to me, that the will often yields to these convul-

sive motions, as to a propensity, and thereby they are often increased, while the person affected seems to be pleased with the surprise and amusement which his motions occasion in the bystanders."

I am surprised that a practitioner of his experience and discrimination should for a moment harbour the opinion which he seems to have entertained; and that he should have been so little acquainted with the pathology of the disease, as not to be aware of its entire independence, not only of the will, but of every other voluntary agent. My observation has led me to adopt a directly opposite conclusion, both from my notions of its causes and seats; and from what I have noticed in the patients themselves. Frequently have I seen patients, (even after they had arrived to the age of manhood,) affected with this disease, who, so far from indulging in the convulsive motions voluntarily, have denied that they had the disease, and such their wish to conceal it, have exerted every force which they could command to restrain these motions; when the disease, proving triumphant, exposed them in that ludicrous light by which it is characterized. Chorea seems to have been regarded very differently by different practitioners, since the time of Sydenham. The theory of that physician was as follows: "*Cum affectus ab humore aliquo in nervos irruente, quorum irritatione istiusmodi motus præternaturales producuntur, pendere mihi videretur;*" and he directed his treatment to the removal of the "*humor aliquis in nervos irruens,*" on which he supposed the disease to depend.

Hence he employed for its cure, three or four bleedings, and in the intervals between the bleedings administered purgative and paretic medicines, and continued their use after the last bleeding, till the patient recovered.

It is difficult now to say, what length of time practitioners were enslaved by the authority of Sydenham, which led them to adopt the theory he maintained, and to pursue the practice deduced from it. Certain it is, however, that his successors followed, with a steady step, for a great many years, the course he had pointed out: but at length a new theory

and practice were established, overlooking, (as says Dr. HAMILTON,) the only useful part of his, (Sydenham's,) practice.

Hamilton accounts for the change in the theory and practice in this disease, from that of Sydenham's as follows: "It is probable, that the anxiety expressed by Sydenham, that in the administration of blood-letting and purging his patients should catch no harm; together with the weakness both of body and mind, characteristic of this disease, may have introduced this change."

I am of opinion, that Dr. Hamilton's conclusions are very just; and that they, together with the evident improper practice of Sydenham, must have induced the revolution in question. I am sure no one would, at the present day, think of employing blood-letting in the disease as it occurs amongst us: for the patients, from the influence of the causes previous to the accession of the disease, are generally too much weakened and debilitated to bear with impunity the smallest loss of blood.

The practice which succeeded that of Sydenham's, grew out of a theory, that chorea was a certain debility, or general weakness and irritability of the nervous system, with a loss of tone, on which the convulsive involuntary motions attendant on the disease, have their origin. Here, the exclusive employment of the stimulant and tonic medicines was adopted. Among these, opium, camphor, cinchona, valerian, and the different vegetable bitters, with steel, zinc, some of the preparations of copper, cold bathing, and upon the authority of DE HAEN, electricity were much confided in.

Notwithstanding the employment of this extensive catalogue of remedies, all, however, having a tendency to the same end, that is, the removal of that debility and loss of tone in the system, on which the disease was supposed to depend; chorea proved a tedious disease, and in many instances remained intractable; maintaining its ground until it was rooted out by the changes which the system undergoes at the age of puberty, or till death relieved the wretched sufferer from his unhappy fate. I speak here of the disease as occurring in children; as the writers of that day mention it, as attacking very

rarely the adult. Some instances, however, are noticed, where the disease, when not removed by an effort of nature at the age of puberty, has continued to harass the patient ever afterwards. Thus we may perceive, that little confidence was to be placed in the stimulant and tonic plan, where cures were so difficult and rare, and where it was admitted that the disease continued many years, nay, as long as the patient lived, in defiance of the remedies that were employed for its removal.

We now come to an era which produced us an HAMILTON, who was to remove the thick veil which obscured in mystery and darkness, one of the true sources of this malady; to promulgate to the world, a theory erected on the very basis of the disease, (an observance of its earliest phenomena, which seemed heretofore to be entirely overlooked;) and to establish a treatment, which, he at least has said, proved more successful in his hands than that which had been previously recommended and employed. To Hamilton is due, the credit of first having located, (what he thought,) the grand exciting cause of chorea in the alimentary canal, and called the attention of practitioners to purgative medicines for its cure. He was led to take this view of the subject, from an observance of the symptoms in the early or forming stage of the disease, and from the appearance of the egesta, which he had observed to be passed by those who were affected with it.

Many cases occurred to him, in which he employed, without success, the usual treatment; and he determined to put into execution a different practice from that which had been previously adopted, and which accorded with his preconceived notions, as to the cause and seat of the disease.

He conceived that the debility and spasmodic affection hitherto so much considered, might not be the leading symptoms of the disease, but might depend upon previous and increasing derangement of health, as indicated by abated or irregular appetite, impaired digestion and constipation of the bowels.

Under these impressions, he lost no time in administering those medicines, which seemed to promise so much; and as

experience has proved to him the safety of administering purgative medicines in typhus fever, reasoning from analogy, he did not think that a cautious use of them would be prohibited in the most debilitated state, which chorea might induce. The conjecture, he observes, proved well founded; and his success equalled his most sanguine expectations, and encouraged him to perseverance and decision.

The purgatives which he first employed, while testing their utility, were of the milder kind: these he found inadequate to the removal and discharge of the indurated and fetid contents of the alimentary canal. Hence it was necessary to employ those of the most active kind, and to persevere in the use of successive doses, in such a manner that the latter dose might support the effect of the former, till the intestines were completely cleared; and afterwards the judicious employment of them, in such doses, and at such intervals, as to prevent a re-accumulation.

In speaking of the effect of this treatment, and the advancement the patient makes towards a recovery, he says, "Here, as in all other cases of extreme debility induced by disease, the recovery is at first slow and gradual. A regular appetite for food, a more intelligent eye, and lightened countenance, cheerfulness, and playfulness of temper, increasing aptitude for firmer motions, the restoration of articulation and of the power of deglutition, a renovation of flesh and strength succeed each other, and being more confirmed, are, ere long, followed up by complete recovery."

He maintains, that for some time after these salutary changes take place, the state of the bowels should be the object of our care. The occasional use of purgatives will be necessary to support their regular action; and about this time also, tonic and stimulant remedies may be used with propriety and advantage: they restore tone and vigour to the torpid intestines, aid the purgative medicines in obviating costiveness, improve the health and invigorate the system generally, and thus confirm a recovery already advanced.

I have now mentioned the different doctrines that have prevailed since the disease was noticed by Sydenham, till the

present day. Hamilton's is the best adapted to the disease, as proceeding from the causes of which he treats, and has superseded all others. He, however, attributes the occurrence of the disease alone to constipation, attacking those chiefly, who are of weak constitutions, and whose natural good health and vigour have been impaired by confinement, or the use of scanty or improper nourishment.

Children, he remarks, from the eighth to the fourteenth year, are most commonly the subjects of this disease, having only met with two exceptions, which occurred in two young women, who were from sixteen to eighteen years of age.

My experience has led to the fact, that chorea, in the section of country where I reside, has rarely proceeded from constipation of the bowels, but has generally been induced by the irritation of worms in the alimentary canal; and it has not by any means been confined to children. I will, at the conclusion of this essay, give a detail of the different cases that I have seen, with as correct a history of their early stages as I was enabled to procure; and at the same time shall mention two cases, which seem to be independent of any irritation in the *primæ viæ*; one having its origin from the changes in the uterine system induced by conception, and the other, from the changes in the same part, which take place about the period of the first appearance of the menses.

I shall next proceed to enumerate the symptoms in chorea, as occurring in its different stages. Hamilton is the first who divided this disease into two different stages; and as they are presented to us so strongly marked, I shall follow him in this division.

Symptoms of the first stage. These I have found to vary according to the exciting causes. Worms being the most frequent cause of the disease, this stage is generally marked by the symptoms indicative of the presence of these animals in the alimentary canal. These, we all know to be, pains in the belly, intestinal irritation, voracious appetite, sometimes very much depraved, craving chalk, dirt, &c. Besides these, there is fetid breath, pale complexion, livid circles around the eyes, tension of the belly, and alternate constipation and diarrhœa.

and swelling of the lips. The sleep is much disturbed, attended with startings and frightful dreams. A dry cough generally attends, with slow fevers; and about this time also, occasional spasmodic affections may be observed.

These symptoms, varying in violence in different persons, in the generality of instances induce their effects so insidiously, as rarely to lead us to suspect the approaches of chorea; and from the convulsions generally first attacking the muscles in one part only, the disease may continue for some time, without being observed. At length, however, our attention is directed to the patient by his unusual gesticulations; the difficulty in using one of his arms and hands; the lameness or instability of one of his legs, which is drawn after him in an odd and ridiculous manner, as if it were paralytic. When the patient attempts to convey any thing to his mouth, or to perform any voluntary motion with his affected arm, the muscles are seized with convulsions, and the limb is carried in a direction contrary to that which was intended.

The disease has now made its advance into the second or confirmed stage. Here, in addition to the affection of one of the upper and lower extremities, the muscles of the other limbs, together with those of the head and face, and the body generally, take on these involuntary convulsive contractions, which operate to such a degree as to render the patient completely helpless. He is unable to perform the ordinary and necessary motions with his arms and hands, and they are tossed and thrown in every direction: his gait is tottering and unsteady; liable to frequent trips and falls, and at length he is unable either to stand or walk. The articulation now becomes impeded, and is frequently completely suspended: mastication and deglutition are performed with difficulty, and in one case,* I have seen a total incapacity to perform the former, compelling the patient to nourish exclusively on fluids. The eye loses its lustre and intelligence, and the countenance is pale and expressive of languor; and when the muscles of the face are convulsed, it expresses great horror

* See Case No. 1.

and wretchedness, giving the patient a fatuitous appearance. Indeed, in many instances, when the disease has continued for some time, fatuity to a certain extent does evidently exist; and in a patient* that I have seen, it has been known to exist for the period of thirty-five years, continuing to the day of her death.

Fever is not a necessary attendant on this disease. When it does attend, it is generally of a slow form, which observes with some regularity a periodical occurrence. Its exacerbations take place once in twenty-four hours, and are preceded by a cold stage; though unaccompanied by rigors, is sufficiently marked by the following symptoms: languor, debility, yawning and stretching. The face becomes more pale, and the features shrink: coldness of the feet and hands: the respiration is short, humid, and anxious, and performed with some difficulty. These symptoms having continued one or two hours, gradually abate, when those of fever make their appearance. The paroxysm continues six or eight hours, when the patient is left in a weak and wearied condition. It is to be remarked, that the muscular contractions are in some degree suspended during the paroxysm; and that, during the state of sleep, which now generally ensues, they, in most instances cease altogether.

Having now mentioned some of the most prominent symptoms under which the disease is usually presented to us, I shall detail the treatment which is the best adapted and the most successful. In a preceding part of this paper, I have premised much of what I have to say on this head. I remarked on the different modes of cure which have been employed at different periods, for more than a century past, and entered my concurrence with that which accorded with my views, and with the experience of the practitioners of the present day.

In the management of the cure of this disease, it will be necessary to bear in mind the causes which produced it, and direct our remedies to their removal: this end having been accomplished, we have gained an important point; and the

* See Case No. 7.

judicious and persevering employment of such remedies, as the indications of the system may call for, will complete the cure.

The great difficulty which we have naturally to encounter in ascertaining the causes of nearly all diseases, is scarcely any where more strikingly observed than in the one before us. This remark is more particularly applicable to those diseases dependent on sympathetic influence. Having their origin in some remote point, the diseased impression is conveyed by means of this nervous influence to various parts of the system, and where a predisposition exists in any particular part, it there centres, and takes on an action peculiar to itself. This is exemplified in the case of chorea. An irritation is first induced in the alimentary canal, or some other part, which continuing for some time, *wastes* the vigour and tone of the muscular *flesh*, rendering it flaccid and inactive: at a more advanced period, the mind participates in this general weakness and debility, as is shown from the fatuity which usually attends this disease. Thus there is a predisposition excited in these parts, or rather an inability in them to resist the force of the diseased action, which is pervading the system through the medium of the nerves, and they take on those impressions, by which the disease is characterized.

Some practitioners have pronounced cases of this disease incurable, alleging that they depended on some organic lesions of the brain. They likewise contend, that worms are seldom or never the cause of disease; and that "they are a persecuted race of animals, more sinned against than sinning."

Under these circumstances, how difficult is it to ascertain with certainty, the causes of this complaint, and without this knowledge, how impossible to prescribe remedies which are certainly adapted to their removal. It is, however, conceded by all, that the cause or causes, (whatever they may be,) of this disease, act as local irritants; and that the involuntary convulsive motions of the muscles are the consequence of this irritation. This influence I would suppose to be exercised in the production of these convulsive motions, as follows.

There is some irritation in the system affecting the nervous structure, which, by an interruption of its natural functions, necessarily imparts a deranged influence to the muscular fibres, (into which they are most minutely distributed throughout the body,) and induce an impression contrary to their healthy action: consequently, the muscular fibres being deprived of the healthy stimuli derived from the nerves for their well-being; and in its stead is substituted an irritable and irregular impression, a wasting and flaccidity ensues, with a loss of their natural tone and vigour. And again, when this irritation is seated in the alimentary canal, the contiguity of the great sympathetic nerve, (which establishes a connexion and union between all the organs which perform the functions of assimilation,) must necessarily render it liable to a powerful impression, and as a consequence the disturbance of the functions which it is intended to control, inducing constipation, indigestion, &c. Nor indeed does the mischief stop here. This irritation being continually kept up, the influence of the nerves is exerted more powerfully from their increased weakness and consequent inability to resist, till this irritability is at length extended to spasm, which, in the generality of cases, is first discovered in some part over which the will exercises an influence, from the circumstance of these involuntary contractions resisting the inclination to perform some voluntary motion.

It is thus that I would account for the necessity that the exciting cause of this disease, (that is, the irritation first affecting the nerves, and thence the muscles,) must exist a sufficient length of time, and with sufficient force to destroy the health and vigour of the muscular fibres, so that they no longer can be controlled by the influence of the will, nor resist the propensity to take on the convulsive action, which so constantly had been imparted through the medium of the nerves.

If this convulsive state of the disease should be induced, previous to much weakness and wasting of the muscular flesh, which I contend, (in the generality of instances,) to be necessary before the accession of the spasmodic affection, I would

attribute it to a stronger influence exerted by the nerves on the muscles, overcoming at once their natural force of resistance, and thus inducing the involuntary contractions characteristic of chorea.

Upon the same principle I would account for the state of fatuity which usually attends this disease. The brain is the centre of animal life, the grand censorium of animal sensations. It is the spring of voluntary motion, and has transmitted to it all the impressions received by the sentient extremities of the nerves; hence we may say, "Omnibus dat et omnibus accipit." Its functions are subject to the same laws as the other functions; they develop and go to decay in the progress of age; they are modified by habit, sex, temperament, and individual disposition; they become confused, weakened or elevated in disease; and the physical injuries of the brain weaken or destroy them. As in this instance, an unhealthy and unnatural impression is communicated by the nerves to the brain, a disturbance of these functions must necessarily ensue.

When the disease proceeds from worms in the alimentary canal, our efforts should be directed to their immediate evacuation. For this purpose, the drastic purgatives, the purgative anthelmintics, and the anthelmintics themselves, have all in their turn been employed, and there is not wanting evidence of their utility.

I shall speak first of the drastic purgatives. Of this class calomel is admitted to be the most efficacious. It should be given at night, in the largest doses, and worked off in the morning with castor oil. These should be repeated several days in succession. In addition to calomel, nearly all of this class have been recommended, and they seem to possess nearly the same powers. They may be employed indiscriminately.

Anthelmintic Purgatives.—These are valuable from their having the united properties of an anthelmintic and a purgative. By exciting purging they generally carry off from the intestines, the mucous and other contents in which the worms are generally enveloped, and thus permit a free access for

the action of their anthelmintic properties. That of this class now in highest repute, is the Croton Oil. This is the essential oil of the Croton Tiglium. The professor of the Institutes and Practice of Physic in the University of Pennsylvania, speaks of this medicine in terms of the highest approbation, which circumstance is alone sufficient to recommend it to the attention of practitioners. He advises a dose to be given every other day for a week or more, and adds, "which in my hands, has proved exceedingly effectual."

The confidence of the same distinguished physician, seems to be but little less, in the virtues of the *spigelia marylandica*; he has derived great advantage from this medicine, combined with senna or jalap, so as to purge smartly. The combination, however, in which he reposes most confidence, is, for a child, viii grs. calomel and viii grs. *spigelia* united; and, (says he,) in ninety-nine cases out of an hundred, you start the worms. There is a popular nostrum vended in this city, into the composition of which the *spigelia* enters, which seems well adapted to most cases. The following, I believe, is the formula.

R. rad: *spigelia* ℥vi. fol: *sennæ* ℥ii. fol: *sabinæ* ℥ss. manna ℥iiss. Ft. pulv: dose for a child three years old viii to x grs. night and morning; for an adult ℥ii. to ℥i. at the same intervals.

In the administration of *spigelia*, it will be necessary carefully to watch its operation, for even in ordinary doses, it sometimes produces a train of very alarming symptoms: as pain in the head, vertigo, perverted vision, tremours and convulsions. These are the consequences of its narcotic properties, and to obviate which, it is recommended to be used in infusion, prepared with the *serpentaria virginiana*, when it is said not to produce these narcotic effects.

Spiritus terebinthinæ. This is a medicine, which of late years, has attracted much the attention of practitioners, as possessing in an eminent degree, the united properties of an active purgative, and those of an anthelmintic. It is generally given in union with castor oil, and from the use of this

combination alone, for six or eight weeks successively, I have seen an obstinate case of chorea, proceeding from worms in the alimentary canal, completely and radically cured. This medicine, when perseveringly employed, seems to have the effect of destroying, (more effectually than any other remedy I have seen tried,) the germs of future animals in the intestines, which were deposited by the worms that had been evacuated. This is a desideratum of great importance; for in many diseases, we are unable to remove this, the exciting cause, on account of the rapidity with which these animals are generated, and the difficulty heretofore experienced in procuring a remedy suited to prevent this process.

There are many other anthelmintic purgatives, which are occasionally employed with some advantage: but the few I have enumerated, are those in which popular confidence seems mostly centred.

I next proceed to say a few words on anthelmintics. It is to be regretted that this class of medicines is so uncertain in their effects, and that so little benefit, in the generality of instances, is derived from their employment. They, however, sometimes prove useful, enough so to warrant their trial, when our other resources have failed. Those in common use, are the *chenopodium anthelminticum*, *helleborus fætidus*, *melix azedarach*, *geoffrœa inermis* and camphor, muriate of ammonia, muriate of barytes, muriate of soda, rubigo ferri, and Fowler's solution of arsenic.

Mr. Cloquet, after mentioning those agents by which the *lumbrici* are most successfully treated, proceeds to enumerate the following topical applications to the abdomen. "I have seen *ascarides lumbrici* evacuated in a state of torpor, after the abdomen of the patient had been rubbed with a mixture of ox's gall and common soap, with the oil of tansey or of chamomile, strongly impregnated with camphor and garlic, or with milk holding aloes in solution, impregnated secundum artem with the bitter principle of the colocynth and camphor, or with the maceratum of bruised garlic in camphorated sulphuric æther, a plaster composed of yellow wax, litharge,

assafœtida, and galbanum, and assafœtida dissolved in the gastric juice."

With the preceding applications, I have no experience ; and from the little activity which many of the articles evince in destroying worms, when administered internally, I do not think that much is to be expected from their external application ; but from the tobacco, (which I have in one instance tried,) we are to look for much more powerful effects.

The patient who was the subject of this experiment, was excessively annoyed by the great number of worms which infested her stomach and intestines, and other means failing to afford relief, the idea occurred to me, that the peculiar effects of tobacco on the human system, might possibly be extended to the worms in the alimentary canal, and thus prepare them to be carried off by the vomiting and purging that would ensue. Hence I applied a bundle of the leaves of the tobacco, wetted in warm water, over the region of the stomach, and another over the abdomen, and in a short time, great prostration and nausea were induced, quickly succeeded by a violent artificial cholera morbus. This was just the event I most wished for, and after a few moments continuance, about fifty large lumbrici were vomited from the stomach, and upwards of an hundred were passed per anum, in a torpid, and many in a lifeless state. No unpleasant symptoms followed the effects of the tobacco, and immediate relief succeeded the evacuation of the worms.

I have now mentioned the treatment proper for the destruction and evacuation of the worms from the alimentary canal: this being accomplished, the main prop of the disease is removed; and it will only be necessary, in completely eradicating it from the system, to relieve the convulsive action of the muscles, which, in cases of long standing, generally remains after the worms are evacuated. This now seems to be kept up alone by habit, or from nervous irritation previously induced by the presence of these animals. In this belief I am confirmed, by the observations of a late writer on the subject of worms, (DUNGLISON on the Diseases of the Stomach and Bowels

of Children,) which has fallen into my hands since writing the preceding. He remarks, "after the expulsion of the worms, the symptoms frequently persist for some days—the agitation of the sea not being calmed immediately after the cessation of the tempest. This morbid concussion depends on the habit of being irritated, which the intestines have contracted from the presence of the animalculæ."

For these symptomatic affections tonics are to be prescribed. The best that I have seen tried, is the *serpentaria virginiana* in large doses, alternated with a strong decoction of the *polygala seneka*. These, I have been informed, have perfected cures, after bark, chalybeates, and various other tonics had been ineffectually employed. Co-operating with these remedies, it will be necessary to employ moderate exercise in the open air, and a well regulated diet.

When the disease proceeds from constipation, (which I believe is rarely the case in this country,) it will be necessary to employ active purging, till the source of irritation is removed, when the same course of tonics may be employed, as is recommended in the preceding instance.

When chorea occurs in weak and irritable habits, and it is ascertained to be wholly unconnected with any species of irritation, either of worms, or acrid matters in the *primæ viæ*, (if indeed it ever does occur independent of those agents,) we should not employ any of the evacuant medicines, but have recourse to strengthening remedies, with a view of increasing the tone of the muscular system, and of improving and invigorating the general health. In these cases which have not been readily cured by the use of the vegetable and mineral tonics, conjoined with some of the antispasmodics and cold bathing, strong electrical shocks, directed through the whole body, have been recommended. This, however, from its frequent failures in those diseases of an analogous nature, where it has been fairly tried, is now little confided in as one of the resources of our art. In addition to electricity, it is said, that the application of a perpetual blister to the *os sacrum*, has been found a valuable remedy.

I have now completed the treatment to be employed in chorea. It will be perceived from the more particular attention I have paid to that form of it, proceeding from the presence of worms in the alimentary canal, I attribute that cause as the most frequent source of its occurrence. Indeed, from the information which I have been enabled to procure from my medical friends, and from what I have myself observed, I am almost induced to believe, that worms and their consequent irritation, is the exclusive source of its origin, having never known it to arise from any other cause, save two of the cases* I shall hereafter mention, which may be considered as anomalous.

I am aware that I oppose very high authority, in thus confidently advancing the opinion, that worms are the cause, not only of chorea, but in some instances, of almost all diseases. Fevers have been kept up again and again by their presence, and mania, tetanus, epilepsy, dysentery, pleurisy, affections of the head, cynanche trachealis, have all been known to be produced by them. It is said that there is a pleurisy which is always accompanied with a discharge of worms, and which cannot be cured until these animals are driven entirely from the intestines. This is entitled to the more credit, from the cough which is known to accompany the existence of worms in the alimentary canal. That they also occasion cynanche trachealis, there is not less doubt; for cases are mentioned, which, resisting all other remedies, were cured by medicines suited to the destruction of these animals. Dr. CHAPMAN, in his course of lectures, mentions a case of croup, which had resisted emetics and the usual remedies: in the morning a large lumbricus was thrown up, and every symptom immediately vanished.

That chorea is produced by them, I can affirm, not only from their discharge in this disease being accompanied with relief, but from the case of a patient's† dying, in whom the intestines were nearly filled with worms, and the stomach,

* See Cases Nos. 7 and 8.

† See Case No. 5.

(to use the language of the physician who aided me in the opening of the body,) contained "a quart measure full."

More need not be said to justify the conclusions I have drawn. The idea, that they are even salutary, by performing the part of scavengers, and removing the undigested sordes of the intestines, is absurd and ridiculous. Nothing is more inconsistent, or would prove more dangerous and fatal in practice.

I shall conclude what I have to say on the subject of chorea, by mentioning the cases that have occurred to me, detailing more particularly those of an interesting nature. Three of these cases have terminated fatally, two have been cured, and the remaining three are yet unrelieved.

CASE 1st. This was a female child of five years old. She had been remarkably healthy from her earliest infancy to the fourth year of her age. She then showed some indication of the presence of worms in the alimentary canal; and in a short time, from the increasing irritation in her bowels, a fever was induced, which is known by the name of *febris verminosa*, or worm fever. This proved very obstinate; but by the use of the appropriate remedies, and the evacuation of the worms, her health was in some degree restored. The constitution, however, seemed to have sustained a shock, which promised to render it feeble and irritable, for at least some time to come: and the succeeding year the symptoms of worms again presented themselves, which, in the course of a few months, occasioned such emaciation and debility, as prepared the system for an attack of chorea. This was first observed by some irregular motions of her right hand and arm, and in a few weeks the affection became general. Her articulation was completely suspended, the power to perform mastication lost, and deglutition performed with much pain and difficulty. She could neither stand nor walk, which, though first interrupted by the convulsive contractions of the muscles of the legs and feet, was confirmed by their wasting and flaccidity, which ensued. Conjointly with these a slow form of fever attended. The case, now in the confirmed stage of the disease, fell under my care, with an occasional visit from

my friend and preceptor, Dr. P. J. BEASLEY, of Virginia. The disease, however, was a novel one to him, (having never treated one in the course of his practice,) and as we were both decidedly of opinion, that it was excited by the irritation of worms in the alimentary canal, he was disposed to yield to my solicitations in making an experiment, to test fairly the combined purgative and anthelmintic powers of the spts. terebinthinæ, having previously seen it advantageously prescribed to similar patients. Accordingly, it was administered in the dose of one tea-spoonful, gradually increased to two, to a table spoonful of castor oil every other morning for six weeks successively. On the intermediate days, the tinct. murias ferri and the Peruvian bark, with a few drops of laudanum in each dose, to prevent its running off by the bowels, and a nourishing diet to support the strength was employed. In the course of the first two weeks after this treatment was commenced, eight large lumbrici were passed, (one measuring fifteen inches in length,) and during the remaining time nine others were discharged. The symptoms seemed now much abated, and the constant griping and gnawing sensation in the bowels, (which had been so troublesome,) subsided. A few days after this, all the symptoms of worms and chorea suddenly vanished, (except an occasional irregularity in the motions of the hands,) and those of hydrothorax presented themselves. The motions of the lungs and heart were greatly disturbed. Respiration was short, quick, and anxious, and could only be performed while the body was in the erect position. Our remedies were now directed to the removal of this affection, in which we succeeded in about ten days, by the application of a large blister on the breast, (keeping it open for some days;) and the employment of digitalis and spts. nitri dulc. to keep down the now increased arterial action, to determine to the surface, and to the kidneys; and the bowels kept open with cremor tartar. When the accumulation of fluid in the chest was removed, not a vestige of chorea or any other disease remained, save that debility which was incident from the system being so long affected. The tonics, tinct. murias ferri and Peruvian bark, with the cold bath, ex-

ercise in the open air, and a well regulated diet, now completed the cure. The patient rapidly regained that health and vigour of constitution, to which she had so long been a stranger; and now, nearly three years since her last recovery from the ravages committed on her by worms, has never had the least symptom of their regeneration, (their germs having been so completely exterminated,) and is a fine, rosy, healthy child.

I have been thus particular in describing the preceding case, for the two-fold reason, of noticing the utility of the *spts. terebinthinæ*, in destroying and removing worms from the alimentary canal, and of relating the singular phenomenon, that the symptoms of chorea should be removed, without any disposition to recurrence, by the appearance of hydrothorax.

CASE 2d. This was a girl twelve years of age. She occasionally every year, since her fourth year of age, had been troubled with worms, and generally found relief from their removal. For several years, however, their numbers were observed to have much increased, and her system to have suffered more sensibly from their irritation. She had now become weak and debilitated, appetite variable and impaired, alternate constipation and diarrhœa, with much griping or gnawing sensation in the bowels. These, together with the other symptoms of worms, clearly indicated their presence in great numbers, and that her declining health was dependant on that cause. The symptoms of chorea next made their appearance. Previous to this time, little had been done, but the employment of some domestic remedies. A more active course of treatment was now called for, and was accordingly adopted. Medicines suited to the destruction and evacuation of worms were prescribed, and in the course of three or four months a cure was effected.

CASE 3d. This is a boy eight years of age. The history of this case was related to me by the father of the boy, and is as follows. He had been generally healthy to the fifth year of his age—he was then attacked with bilious remittent fever, and after several smart purgatives had been administered, it

was for the first time observed that he had worms, from several having passed from him. In due time the fever was removed, but he continued weak and drooping. Tonics, &c. were administered, without much improving his strength or health. His bowels were very irritable, and occasionally some tenesmus attended. These symptoms, however, were attributed to the effects of the active purging which they had sustained in curing the bilious fever; and worms, their true source, entirely overlooked. He thus continued for some time, when he was observed to have some muscular affections, indicative of the approaches of chorea. In a short time this was confirmed by the affection becoming more general. He occasionally passed a worm by stool, but his father could not be induced to think that they were the cause of so much muscular derangement, and nothing was done for his relief. No disturbance of his intellectual faculties could be observed, nor has any interruption of his articulation or deglutition attended. He is able to walk about, (but with a clumsy and tottering gait,) and to perform some of the ordinary motions with his arms and hands. In this situation he has continued for the last three years, and is yet unrelieved.

CASE 4th. A girl ten years old. About four years ago she was attacked with febris verminosa, which, after continuing for some time, terminated by inducing a moderate attack of chorea. The disease is chiefly confined to her hands and arms—occasionally in one of her legs; in other respects she is tolerably well. Nothing has been done for her relief, nor has she had any evidence of worms within the last three years. She looks pale and weakly and is much under the size of children at her age. Her disposition is lively, and mind active and sprightly. The disease seems to be kept up purely from habit and delicacy of constitution; as there is not the least evidence of irritation in any part.

CASE 5th. A coloured girl, aged twenty. She had been subject to worms from her infancy: she was weakly and always very thin: her appetite very depraved, craving chalk, dirt, &c. in which she indulged to considerable excess. Her abdomen was generally tumid, so much so, as to have the

vulgar epithet "pot-bellied" applied to her: her bowels painful and alternately loose and constipated. About two months before her death, violent symptoms of chorea made their appearance. The muscular affection was so considerable, as much to resemble tetanus. A physician was called, who administered a purgative occasionally, and trusted chiefly to antispasmodics. These, however, afforded no relief, and after much suffering tetanus was induced, which carried her off in twelve hours. On opening the body, the intestines were found nearly filled with worms, and the stomach had in it a vast number of loose worms, and a ball of them as large as a man's fist.

CASE 6th. A man aged twenty-four. He was raised on a low penurious diet, and had been affected with worms from early life. His complexion was pale and sallow, and his appearance generally meagre and unhealthy. About five or six months before his death, he had suffered much from pain and griping in his belly, sometimes discharging much blood and mucous. His strength, (which had never been great,) was daily diminishing, his propensity for diet much increased, and his health was rapidly declining. Chorea now appeared. Its attack was sudden and violent. This continuing a few weeks, with an increased irritation in his bowels, carried him off in great agony. Immediately after his death, worms in great numbers were seen to crawl from his anus, mouth, and nose, clearly indicating that they were the cause of all his suffering and death.

CASE 7th. A woman aged forty-eight. During the life time of this woman, I had frequently seen her, but never inquired into the history of her case till since her death. The account which I shall here give, is what was furnished me by her brother, with whom she had resided many years previous to her death. She was a healthy and well grown child, and at her fourteenth year of age, the catamenial influence was first observed. From the severity of the symptoms, and great pain and suffering which she now endured, she was taken very ill. Much fever was present, her mind disordered, and the discharge came away slowly and with great pain, and was

kept up several weeks in succession. She now, from being a strong and robust girl, was reduced to an alarming state of weakness and debility. Her motions with her arms, legs, and head, were observed to be irregular, but not much attention was paid to them, as they were attributed to her weakness and emaciation. About two months after the first appearance of the symptoms of the menstrual effort, the discharge became more sanguineous, came away with less pain, and larger in quantity, and in a few days more, all the distressing symptoms, (except those of chorea,) subsided. Her appetite was much improving, her strength increasing, and about four weeks after the discharge last appeared, she had a plentiful and healthy show without any disagreeable attendants. From the exercise which she now was enabled to take in the house, the irregular motions of the legs had become less troublesome and her gait not much disturbed; but those of her head and arms continued exceedingly to harass her. Her head was kept in constant motion, tossing in every direction, which kept up a dull heavy pain. Her eyes had lost their lustre, and the countenance looked vacant. The mind seemed to settle down into a state much resembling idiotism. Her general health was at length pretty well restored. She had no further interruption to her catamenial discharge, and could walk with tolerable facility. The involuntary contractions of the muscles of her arms and hands, and head and neck, and the fatuitous state of mind, attended to her forty-eighth year of age, at which time, (without any premonitory symptoms,) while sitting in a room with the family, she suddenly fell lifeless on the floor.

CASE 8th. This is the case of a young lady, who had married in her 18th year of age. She had always enjoyed good health, and was never more free from disease than at the time of her marriage. In a few weeks after this event, she was affected with such symptoms, as induced her and her friends to think that conception was about to take place. The symptoms were very severe, which soon induced considerable weakness and emaciation, and in about three weeks after their first appearance, it was observed that chorea was evi-

dently approaching. The irregularity was first observed in her right arm and leg, but in a short time those on the left side likewise became affected. As this last disease became more confirmed, those symptoms which indicated that some change had taken place in the uterus, gradually subsided, when her general health became much improved. Chorea, however, maintained its ground, affecting only the motions of her arms and legs, occasionally disturbing her articulation. Thus she remained till the period of her delivery, when these also disappeared. Her husband dying a few months after this, she became pregnant after her second marriage, about two years from the death of her former husband. On her conceiving a second time, the same symptoms occurred as before, when chorea was again induced. When I last heard from her, she was about six months advanced in pregnancy, and chorea affected her in the same way as in the former attack.

I notice the preceding cases, with a view of illustrating the idea which I entertain of the causes and origin of chorea. They prove conclusively, that it is dependent on a local irritation produced in some part or other, and that this irritation affecting more or less the general system, must induce considerable emaciation and debility before it makes its attack. Thus, the exciting cause may be an irritation from worms in the alimentary canal, and when there is a sufficient wasting of the muscular flesh and strength, chorea takes its origin in the muscular parts, now incapable of resisting its influence.

ART. VIII. *Thoughts on the Causes, Phenomena, and Laws of Epidemics, with suggestions for their prevention and suppression.* By N. CHAPMAN, M. D.

(Continued from No. XVIII.)

WE come now, to deliver, what are denominated the laws of epidemics. They are no where to be found embodied, and can only be collected from an extensive research into the writings of those who have treated of these diseases—among which, may be consulted, with the greatest advantage, the works of HIPPOCRATES, SYDENHAM, MORETON, HUXHAM, SIMS, and RUSH.

1st. The first law of epidemics is, that no two diseases of unequal force can co-exist in the same place. To this general rule, there may be some exceptions, though they are rare, and occur only, where the diseases are limited, feeble, and ill developed. Exercising its full sway, the epidemic influence stifles and suppresses the puny and more ordinary diseases.

THUCYDIDES says in his account of the plague in Athens, “that if any one was sick before, all his illness was converted to this.” CHENOT tells us, “that by the testimony of almost all authors, when a place is infected with a plague, it is generally free from other diseases, *except those which have some resemblance or affinity to it.*”^{*} We are informed by MERTENS, “that when the plague raged in Moscow in 1771, all the preceding diseases, some of which were violent, ceased.”[†] “It is worthy of observation, says SAUVAGES, that all acute diseases during the year 1720, when the plague fell on Alet, disappeared, and that such as sprung up in the intervals of its intermissions, were of the same nature as the plague.”[‡] In the plague at Malta in 1813, the president of the college of physicians informs us, that all other sickness ceased.[§] Early in the summer of 1771, we learn from SIMS, that a very malignant fever broke out in Ireland, which “claimed the prerogative of plague, almost all others vanished from before its sovereign presence.”^{||} Continuing his observations,

^{*} Hastings, 130, from Chenot De Peste, 37. [†] Ibid, 136. [‡] Ibid, 130.

[§] M’Clean, vol. 2, p. 30.

^{||} Sims on Epidemical Disorders, p. 182.

he further states, "that during its prevalence, whatever feverish complaints intervened, whether erysipelas, rheumatism, or any particular inflammation, constantly at first assumed a resemblance of the epidemic."* Many epidemics, he proceeds to remark, "seem to bring the fever and other symptoms incident to inter-current disorders, to nearly their own standard, stamping them all with their peculiar mark."†

It is affirmed by the physicians of New Haven, that when the yellow fever existed there, every morbid affection surrendered to its control. "In June," say they, "the scarlatina, which had previously prevailed extensively, submitted, and in September, when the epidemic was established, the inhabitants in general were almost entirely free from every other complaint."‡ We also learn from Dr. COULTER, that, in Baltimore, when it became general, it assumed to itself the sole government of diseases.§ Numerous facts of a similar import, might be adduced, more particularly from the writings of Rush.

It was long ago remarked, that an epidemic is a sort of monarch, exacting a species of homage from all inferior disorders, and which imposes upon them, the degradation of a livery. Being not powerful enough to expel entirely a disease, it forces upon it, some of its symptoms, and gives to it, in a greater or less degree, its own peculiar character and aspect.

This observation was frequently made by Sydenham, in the epidemics with which he was conversant. Thus he asserts, "that when the small-pox prevails, much of the fever of that year, plainly partakes of the same inflammatory nature, or, that both distempers begin after the same manner, and are attended with a great similarity of the most peculiar symptoms, as manifestly appears, from the great tendency to spontaneous sweats, and the discharge of saliva in each, differing only in the eruption of the pustules," &c. The same was illustrated, in the late epidemic prevalence of small-pox in this city.|| During its ascendancy, whatever might be the

* Sims on Epidemical Disorders, p. 193.

† Idem, 194.

‡ Webster, vol. 1. p. 309. § Idem, 323. || In the years 1822 and 1823.

nature of the fever, it assumed many of the variolous appearances in its progress, with an extraordinary tendency to eruptions, exhibiting a greater variety of cutaneous affections, than we ever before had witnessed. The question is asked by Huxham, "whether there is not some peculiar disposition in the atmosphere at times to produce cuticular eruptions. Surely, continues he, when small-pox and pustular fevers are rife, all kinds of eruptions, as the rash, itch, erysipelas, &c. are common as is very frequently observed."* On a recurrence of small-pox six years afterwards he had occasion again to remark "that at this time, there seemed to be a peculiar disposition in the blood, to produce efflorescences, the small-pox, the measles, the pimples, and pustules of all kinds now prevailing together."† Nor is it less true with regard to other diseases. It is declared, by the late Dr. Rush, that in one of our yellow fevers, patients under small-pox, frequently had black vomit, or similar matter, evacuated by stool.

"When dysentery, says Sydenham, is the principal raging disease of the year, the fever of the same year bears a strong resemblance to it;—excepting only in dysentery, the morbid matter is discharged by stool, with a few symptoms connected with it, each attacking in the same mode;—and, in both cases, apthæ, and like symptoms, are equally apt to appear, and, indeed, the dysentery we speak of, is the very fever itself, with this particularity, that it is turned inwards upon the intestines, and discharges itself in this way."‡

In our own malignant fevers, whether of the summer or winter, we had the most ample evidence of the accuracy of the observation. In the early existence of the yellow fever, every complaint, whatever might be its ordinary nature, became at one period inflammatory, with some gastric distress, &c. But, while under the dominion of the typhoid epidemic of the winter, our diseases of every description wholly changed their character, assuming the more feeble shapes, requiring an entirely novel plan of practice.

* Huxham on Air and Epidemic Diseases, vol. 1, p. 139.

† Idem, vol. 2, p. 107.

‡ Sydenham's Works, p. 8.

The revolution, in this respect, was so thorough and complete, that a considerable time elapsed, after the total disappearance of the winter epidemic, before we dissipated the views which it created, and reverted to our former modes of contemplating and managing diseases.

2d. By continuance, all epidemics gradually expend their force, and become milder, so that in the progress of time they are overcome by subordinate diseases, and ultimately driven out or expelled. As has been said of the month of March, they enter like the lion, and retire as the lamb—or, as it is more beautifully expressed, they invade with the violence of a horde of barbarians, producing indiscriminate ravages, and retreat with the mildness of a humane and polished people.

It is stated, in confirmation of this law, that, “when the plague of London was at its height, it killed in two or three days, and four out of five died. But, when it began to decline, it ran a course of eight or ten days, and four out of five recovered. It pleased God, just then,” says the historian of it, “to disarm this enemy, and without any new medicine or method of cure discovered. The disease was enervated and the contagion spent.”* Exactly the same has been remarked of yellow fever: always, in the beginning, mortal, in nearly every instance—progressively more tractable,—till, finally, it becomes comparatively curable. It often happens, however, that when epidemics are materially influenced by seasons, they gradually yield to some other disease, to return again with the recurrence of the season. The plague of London was preceded by an epidemic fever, which, on the breaking out of the former, was suppressed—and, on its subsidence the latter again re-appeared.†

Diseases dependent on particular *constitutions*, owing to seasons or otherwise, are apt to be blended, where one is in the wane, and the other commencing. Dysenteries, says Sims, which were truly the epidemic of 1768, continued during the winter, united with rheumatism, which appeared on the accession of cold weather.‡

* Hastings, p. 57. † Sydenham. ‡ Sims on Epidemical Disorders.

3d. Epidemics are influenced in their character and appearance, by the sensible qualities of the air, by topical exhalations, by free or deficient ventilation, and by a variety of other causes. This is noticed by Sydenham, who says, "that it does not depend so much on the various seasons of the same year, as upon the different constitutions of different years."* But the most striking instances are afforded of such agencies, in the modification of epidemics, and within very narrow limitations. Thus, we are informed by Sir JAMES M'GREGOR, "that, when the plague broke out in the Indian army in Egypt, the cases sent from the crowded hospitals of the 61st and 88th regiments, were, from the commencement, attended with typhoid or low symptoms: those sent from the Bengal battalion, when the army was encamped near the marsh of El Hamed, were all of the intermittent or remittent type. The cases which occurred in the cold rainy months of December and January, had much of the inflammatory diathesis—and, at the end of the season, at Cairo, Ghiza, Borlac, and, on crossing the isthmus of Suez, the disease wore the form of a mild continued fever."

It is impossible to read the various accounts of our own epidemics without arriving at the same conclusion. The yellow fever has never occurred in this city, that it has not been marked by gradations of malignity, derived from the circumstances of the spot in which it was located: and in relation to the spotted fever, as well as our recent epidemic of the summer, the bilious remittent fever;—they were, in different parts of the United States, from intense phlogosis, to extreme typhoid prostration. But, if the same disease may be so diversified, in the same season, still more apt is it to be in different seasons, as admitted by the concurrence of all authority on the subject, from the dawn of medical science, to the present moment. Without an oppressive load of citations, I may be content with what has happened in regard to the yellow fever in this city. Excepting the years 1793, and 1797, when it was decidedly inflammatory, in every other

season, it presented the most opposite character or that of congestion and debility. An epidemic, indeed, sometimes varies so much in the different stages of its progress, from an expenditure of its force, or by other causes, as to require the treatment to be accommodated accordingly. "Continued fevers, especially," says Sydenham, "differ so extremely, that the same method which cures in the middle of the year, may possibly prove destructive at the commencement of it."*

It is for these reasons that the accounts of the same epidemic vary so widely;—and hence arise those intemperate discussions on its nature and treatment, which frequently disgrace our profession.

4th. Epidemics, though usually attended in the same season and place, by a train of phenomena, giving to the disease a pretty considerable uniformity of character, are not always so distinguished. But, on the contrary, it will locate itself in different persons in various parts of the body, so as to present many of the complaints included in the nosological arrangements.

Directing its force to the blood-vessels, it induces fever—to the alimentary canal, the gastric or enteritic affections—to the lungs, pneumonia in its several shapes—to the brain and nerves, apoplexy, delirium, tremors, or confirmed typhoid fever, &c.† Though we may perceive this diversity in the form and physiognomy of diseases, we should ever bear in recollection the usurping power of the reigning epidemic, and the probability, if not certainty, of these affections being merely modifications of the same, proceeding from the peculiar predispositions in the parts at the time of the attack. It is important to keep this precept in view, because, while it dictates a just theory, it will also lead to the most correct and successful practice in these cases.

5th. Epidemics are diversified, as well in their approach, as mode of prevalence. They sometimes come on slowly and irregularly, in detached or sporadic cases—and, in other in-

* Page 3.

† Vide Rush on Yellow Fever.

stances, violently break upon us—then intermit from changes of weather, or other causes, and recur with augmented vehemence.

Completely developed in any place, city, or otherwise, epidemics do not always irradiate from that point, or become regularly diffused over a wide-spread continuous surface. As regards most of them, it has been observed, that, in their course they are exceedingly desultory—leaping over, as it were, intermediate spaces, and lighting on a city or portion of country at a considerable distance;—then, in the same or succeeding seasons, retracing their steps, and inflicting a visitation on the places which had previously escaped. This is conspicuously the case with plague. MEAD, in his treatise on the disease, tells us, that in 1575, Vicenza remained healthy, when Verona and Padua, on each side of it, were devastated—and the very next year, it became sorely afflicted, and the other two cities were exempt. Even to whole countries this sometimes applies. In 542, a pestilence spread nearly over the world—and PROCOPIUS, in treating of it, says, “that if it passed by a particular country, at first, or slightly affected it, soon it returned upon it with the same desolating rage which other places had experienced.” Tracing the history of our own epidemics, we shall find this law abundantly verified, whether we take into view those of winter or summer. Yet it is not universally true. It is stated by SIMS, that in 1766 “an epidemic small-pox appeared along the eastern coast of Ireland, and proceeded slowly westward with so even a pace, that a curious person might with ease have computed the rate of its progress. In this, the disease was scarcely to be interrupted as appeared by the following instance. The children of soldiers, on their march, had brought it from other places to some towns here, during the preceding summer, and though it was of a malignant kind, the afflicted all dying, and therefore most fit to propagate the infection, yet not one of the inhabitants received it, until in its regular progress it had travelled over the intermediate space.”*

* Sims on Epidemical Disorders, p. 37.

6th. In the selection of subjects of attack, epidemics are also capricious and unsettled—sometimes affecting persons of one country only, sometimes of one colour, sometimes of one age, sometimes one sex, sometimes of one rank of life, sometimes of one community, sometimes of one family, though the members of it be dispersed in different directions, owing to peculiar and restricted predisposition, and sometimes the brute creation. These anomalies, however strange they may appear, have been all noticed by the writers on epidemics, and are entitled to attention. Examples of some of them, it may be well to adduce. By the best authorities we are informed, that the sweating sickness, *Sudor Anglicus*, which prevailed in England at the close of the fifteenth century, was confined exclusively to natives of that country—all foreigners, and even the Scotch, escaping it entirely—and that Englishmen who fled into other countries to avoid it, fared no better than those who remained at home. The poet of medicine, ARMSTRONG, in his “Art of Preserving Health,” notices this singular feature in the disease:—

“Some sat at home, and, in the desert, some
Abjur’d the fatal commerce of mankind;
In vain: where’er they fled, the fates pursued.
Others with hopes more specious, cross’d the main,
To seek protection in far distant skies;
But none they found. It seem’d the general air,
From Pole to Pole, from Atlas to the East,
Was then at enmity with English blood:
For, but the race of England, all were safe
In foreign climes: Nor did this fury taste
The foreign blood which England then contain’d.”

There are some other facts of the same kind too curious to be omitted. DIEMBROECK relates, that “in the plague at Basle, only Swiss were the subjects of it, the French and Germans escaping—and at Hafur, in Denmark, during a dreadful pestilence, all strangers, as English, Dutch, and Germans being exempt, though they lived promiscuously among the sick and in infected houses.” It is very remarkable, says the commentator on MEAD’s discourse on this disease, “there was not a British subject in Dantzic received any hurt, while

thousands of the natives fell on the right hand, and tens of thousands on their left.”* We are informed by Sir ROBERT WILSON, that when the plague was spreading among the natives of Egypt, the British soldiers might safely hold the freest communication with the infected. Lest, however, his authority, as not being professional, might be disputed, it may be right to sustain it by that of BANCROFT, by whom we are told, that though some of the natives of India, in the army, were susceptible to it, and which is the more extraordinary, as coming from a hotter climate than that of Egypt, the British troops directly from England did not receive it, and probably could not be made to take the disease.†

Negroes are sometimes the only subjects of epidemics. We have seen, within the last few years, that description of our population exclusively the victims of a most desolating typhoid fever in this city. Nothing here could be ascribed to the peculiarity of residence, or general condition, as the whites, under precisely similar circumstances of abode and exposure, did not suffer from it.‡ There are other illustrations of the same principle. “In the sweeping pestilence in 1618, when almost all the Indians perished, on a tract of three hundred miles in extent, some white men wintered in the country, and associated freely with the sick, without injury. In a similar pestilence among the aborigines on Nantucket, in 1763, not a white man was affected, though never so much exposed to infection. Two or three instances have come to my knowledge. A like discrimination took place in the time of Moses.”§

The plague, it is said, rarely or never affects children. Neither in England nor Moscow, according to SHORT and MERTENS, were they susceptible to it, under two years old. In Malta it attacks, says LAFUERTE, every individual, except the children at the breast: and we further learn from M'CLEAN, that, at the same place, several infants drew milk

* Hastings, p. 190.

† Idem, p. 260.

‡ Emerson's communication on this disease, vide this Journal, vol. vi. § Webster, II. p. 160.

from their mothers from the time they were affected with the plague, to the period of death, without taking the disease. Equally, or nearly so, are infants exempt from yellow fever, according to my own experience. It sometimes, however, happens, that the same disease at different seasons, affects different ages. The influenza of last winter fell most heavily on children, productive of immense mortality among them in the form of bronchitis, and the present season, they comparatively escaping, adults suffered severely.

It is not unusual for one sex to be more affected by epidemics than the other, though in no instance has the difference been so strikingly manifested as in one of the plagues of Italy, by which six thousand men were carried off and scarcely one woman.*

That popular diseases, and especially of a typhoid nature, are more afflictive to the lower orders of society, is sufficiently known. The title of the "Poor's Plague," has hence been adopted. The reverse, however, has happened. In 1757, a fever prevailed in France, which at first attacked the rich only, and the very next year it was restricted to the humble and indigent.† There was the same peculiarity in the two plagues of 1343 and 1361, the first being fatal to the poor, and the second to the gentry and nobility.‡

In some instances the force of the epidemic falls heavily on certain communities, or in other words, on members of particular trades or callings, while others are slightly affected, or entirely escape. Evidence to the first part of the proposition I am not prepared very satisfactorily to bring forward, though as a well received doctrine, I presume that such might be found to sustain it. Those much exposed to dry heat, as bakers, cooks, and smiths, were noticed in the Egyptian campaign to be peculiarly liable to plague.§ As to the second part, however, there is little difficulty. The victualers and scavengers, have almost an immunity from yellow fever in this city. BALDWIN, who was the British consul in

* Rush.

† Ibid.

‡ Webster, vol. II. p. 157.

§ McClean, vol. I. p. 264.

Egypt, mentions, that among a million of inhabitants swept away by the plague in that country in four years, he could not ascertain that a single oilman, or dealer in oil, had suffered.* This is corroborated by JACKSON, who informs us, that in the kingdom of Tunis there was never known an instance of any of the porters who work in the oil stores being affected.†

MINDERERUS, SCHENKIUS, and FONCESCA, have asserted that all the tanners in Rome escaped the plague, and a similar remark was made in London during the prevalence of the disease.‡ It is observed, according to VOLNEY, that at Cairo, the water carriers, constantly wet with the fresh water, conveyed in skins on their backs, are not liable to the plague, and which coincides with what had been previously remarked in London.§

Epidemics, on some occasions, single out particular families. BONETUS relates, that when the small-pox prevailed with great violence in 1621, persons of the same blood, as brothers, cousins, and other relatives, living at a great distance from each other as far as Nuremberg to Lyons, were seized with the disease at one and the same time.|| As relates to the plague, DIEMBROECH records similar facts, where the members of families were dispersed in the same or different and remote cities. The most remarkable instance of the kind is mentioned by VAN SWIETEN on the authority of HEISTER. In the university of Altdorf, in Franconia, a fever of the nature of plague appeared, attacking the professors and students only, though the latter were dispersed in families about the city or at their homes in the country. Thus were its attacks restricted, the cause whatever it might be, proving inert as to all other descriptions of persons.¶

However extraordinary these reports may seem, they are not altogether to be distrusted, such are the anomalies of disease, and since they are corroborated by nearly similar in-

* Webster, vol. II. p. 380.

† Reflections on the Commerce of the Mediterranean, &c.

‡ Hastings, 185. § Travels, Ch. XVII. ¶ Webster, II. p. 160

¶ Idem, 161.

stances occurring in the United States, of which a collection has been made by one of our most respectable authorities. The following is the most striking of the facts. "In 1796," says he, "three persons of the same family in Hartford, two brothers and a cousin, were suddenly seized with a violent fever of a putrid tendency, and carried off within a few days of each other. Two or three others were attacked nearly at the same time, and recovered. But what is most singular, two other brothers, one thirty miles, and the other one hundred and thirty miles distant, were almost simultaneously attacked. Contagion here could not be urged, as the persons did not see each other."*

"Not unfrequently, the force of the pestilential principle in one country, seems to expend itself mainly on the brute creation, while in the same year, or succession of years, its principal operation in a neighbouring country is experienced by mankind. Thus in 1712 and 1713, a very pestilential period, the cattle in Italy, Germany, and other places, received the full force of the pestilence, in a desolating epidemic, while in Austria, Hungary, and the east, it fell on men. Thus also, in 1770, while a dreadful plague was raging in Turkey and Poland, a mortal distemper swept away the cattle in Holland, Flanders, and some parts of England, and malignant fevers prevailed in some parts of America. That the great general cause of the disease among the different species of animals is the same, obviously appears, from the consideration, that during the same constitution of the air, or pestilential period, the diseases of man and beast have a number of similar symptoms, as was the fact in Austria, Italy, and Germany in 1712 and 1713, and such has been the case in the United States."† But in this respect there is great diversity—sometimes animals and the human species are simultaneously affected, sometimes the pestilential cause assails the human species first, and then animals, or directly the reverse, and sometimes one species of animals is attacked, and the next season, or sooner, another description, examples of all which have previously been given.‡

* Webster, II. p. 162.

† Idem, 164.

‡ Ibid.

8th. It is an opinion of PLINY, that epidemics, with the exception of those of winter, (and these very generally,) always originate in the south, and proceed northwardly or westwardly. Yet such is not uniformly true. We are told by RUSSEL, that the pestilence in Aleppo came from the north—and, it is a fact, well established, that plague frequently breaks out at Constantinople or Smyrna, earlier than in Egypt.* The influenza, which is sometimes a disease of warm weather, most generally appears in the north, though not universally. It has been justly observed, that there is an obvious reason why most epidemics originate in the south. The atmosphere being pervaded by the epidemic principle, it follows, that it will be soonest brought into operation where the most powerful local exciting causes exist, as heat, moisture, and their consequences, deleterious exhalations.† An epidemic breaking out at one point, and travelling over an extensive surface, being suspended, will, on its revival by a recurrence of the favourable season, sometime flows backwards, like the reflux of the tide. The influenza of 1825, commenced at the extremity of New England, spreading ultimately to the southern states! But on its re-appearance the present winter, it retraced its steps, and pretty much in the same track.

9th. Two epidemics of the same character, rarely or never, occur in immediate succession. No law has been more strikingly illustrated than this in the medical history of our country. The yellow fever is a disease of summer, confined pretty much to large cities. It passed away in the progress of time, and was succeeded by an epidemic of winter, the spotted fever, prevailing chiefly in the country. That too ran a course, and on its cessation, was followed by our recent epidemic of the autumn, which is now gradually subsiding.

10th. Diseases dependent on specific contagion, and especially the exanthematous fevers, when they prevail as epidemics, are uniformly more violent, and, in some instances, prove intensely malignant. As to small-pox, this is so true,

* Webster, vol. II. p. 185.

† Ibid.

that under such circumstances, neither vaccination nor variolation is any general preventive, and the instances are not uncommon, where previous attacks of the disease, even in the natural way, have afforded no protection.

With this I terminate what I have at present to say on epidemics. Much interesting matter I have omitted or very cursorily noticed. The deficiencies, however, in these respects, I shall hereafter endeavour to compensate in a more elaborate treatise on the subject. In closing my observations, I cannot forbear again to inculcate the importance of the inquiry, and to press it on the most serious attention of our medical men. As much, perhaps more, than any section of the globe, are we exposed to this description of diseases. Distributed as our physicians are over this immense continent, they have great advantages in the study of their phenomena, as modified by the varieties of climate, the changes of season, the fluctuations of weather, the peculiarities of society, and the general differences of locality.

CASES.

[The following very interesting case was published in a Baltimore paper in the month of February last, and is from one of the Physicians to the Baltimore General Dispensary, who has promised to give a more minute report of the case hereafter. Every circumstance in the slightest degree authorizing us to hope for the cure of the horrible malady under which this patient laboured, must be of the deepest interest to the profession generally. We therefore insert the present report, and when a more copious account is given it shall receive due attention. *Eds.*]

ART. IX. *Case of Hydrophobia relieved by the Use of Acetate of Lead.*

PHOEBE POWELL, a mulatto, aged twenty-one, residing in High street, O. T. called at the Baltimore General Dispensary, on Monday, January 23d, 1826, for medical aid; stating that she had been bitten by a mad dog on the preceding Friday. On examination, I found the marks of teeth in two different places about the wrist. I made some inquiry respecting the dog, and ascertained that he had bitten a dog on the ear, and several other animals. The moment the dog was bitten, the part of the ear bitten was cut off, and some applications made which removed all danger of the disease. The supposed mad dog was then chased with a design of killing him, but escaped, and has not been heard of since. From these facts, I had sufficient reason for supposing that the dog was really mad.

I had the wounds cauterised, and ordered five grains of calomel every three hours. The wounds were afterwards dressed with poultices, and the same treatment continued. The last time I saw her before she was attacked with the disease, was on Monday, February 6th. She was at this time labouring under a profuse pytalism. She said she was going into

the country, that she might have some person to attend to her whilst she was salivated. She complained of a tickling pain from the wound up to her shoulder, and soreness of her throat. I then impressed upon her the importance of continuing the calomel as before. On the next day, Tuesday, February 7th, I was sent for in great haste. The messenger stated she had "fits." I found her much convulsed, which subsided in about a minute. In the interval she was quite rational, but her countenance presented a most dismal aspect; the salivation, which on the day before was so profuse, had now receded; her eyes were injected with blood; great pain in the head; excessive pain from the wound up to her shoulder and down her back; a sense of suffocation; a tightness across the chest, with a rising to the throat; immoderate thirst, with difficulty of deglutition. At this time there was no dread of water, but she was exceedingly anxious; impatient of noise; her pulse hard and frequent; and an intolerance of any thing red. After waiting about thirty minutes another paroxysm came on, which we were warned of by great restlessness and the peculiar appearance of her eyes. In the convulsions the strength of the muscles was so great, that three men could with difficulty hold her. At times there was considerable foaming at the mouth, and it was almost impossible to keep her hands out of her mouth; and when they attempted to prevent her, she endeavoured to bite those who were holding her.

It was found necessary, for the personal safety of the attendants, to put a pillow over her mouth during the paroxysm, which she would bite with convulsive eagerness. After a paroxysm she seemed dull and heavy. She was not aware of her convulsions, and great care was taken lest she should hear of them. I made particular inquiries of the family whether she had been alarmed, and was informed she had not. She had not even been talking of the subject for some days back; and then she told her uncle that a person bitten at this season of the year was in no danger of the disease; and that some doctor told her, that as she was salivated, there was nothing to fear; and it would seem there was no apprehension

on her part. On inquiring how the first paroxysm came on, I was informed she was sewing, and complained of head-ache, and in a few minutes fell from the chair convulsed; during this convulsion she at one time barked like a small dog, then howled like a hound; which circumstance did not occur in any succeeding paroxysms. I waited until I had seen three paroxysms; I was then convinced it was canine madness, (hydrophobia:) a combination of symptoms, by which the disease is most usually attended, being fully apparent, and strengthened also by the circumstance of her having been bitten by a dog, which at the time was believed to be mad. I then determined to administer the lead to the greatest extent I possibly could with safety to the patient; having seen a favourable report of the use of the lead in one of the daily papers of this city last fall. (See Federal Gazette, October 5th, 1825.) In the meantime, I bled her *ad deliquum*; immediately on recovering from her faintness, she had a paroxysm as violent as any preceding. I then ordered a teaspoonful of laudanum, and gave directions to the attendants to get the acetate of lead, which directions were neglected, and the laudanum was given every three hours through the night. At the time I left her the paroxysms returned about every thirty minutes.

On the next day, Wednesday, Feb. 8th, I found her much worse, having paroxysms every fifteen minutes; and her thirst very great; and all the symptoms increased to a very violent and alarming extent. I determined to give of the acetate of lead, (sugar of lead,) ten grains every thirty minutes. As the dose was enormous, and the frequency of administering it unprecedented, I remained with her all that day, that I might watch its effects, and avert any disagreeable consequences that might result from the use of the medicine. The disease gradually increased in violence until towards night, when the limbs became partially paralyzed. At one time she had three paroxysms in the space of fifteen minutes. There was an evident effect produced in drinking water. In the afternoon, in the presence of several physicians, I handed her water in a tin cup; in the act of swallow-

ing it, a spasm was produced in the throat; she bit the cup and held it so fast between her teeth, that it was with considerable difficulty I could extricate it from her. About five o'clock, P. M. the violence of the paroxysms began to subside, nor did they occur so frequently; she had not slept or taken any food.

Thursday, 9th, 11 o'clock, A. M.—She continued to improve, and the same treatment was continued. 5 o'clock, P. M. she was not as well as in the morning, and refused to take the medicine, as it made her sick. Goulard's Solution, (a preparation of lead,) was substituted, in the dose of 100 drops every thirty minutes.

Friday, 10th, 11 o'clock, A. M.—She had much improved, the symptoms subsiding rapidly, but she had not slept, nor eaten any thing since her attack. The acetate of lead was given as before, and Goulard's Solution discontinued. At 5 o'clock, P. M. there was no material change since the morning; nor the limbs completely paralysed. I then ordered a blister to be applied, and dressed with an ointment made of two drachms of the acetate of lead, and one ounce of simple cerate, the other medicine to be continued.

Saturday, 11th, 11 o'clock, A. M.—Last night, (for the first time,) she slept well, only having one paroxysm, which was at 11 o'clock in the night. This morning she breakfasted with appetite, the lead ointment had the desired effect, and completely paralysed the limb to which it was applied. 5 o'clock, P. M.—No return of the paroxysms; she slept through the day, and took nourishment freely. She complained most of the pain in her head and stricture across the chest; bowels constipated; tongue brown; considerable fever; pain in the stomach; ordered an ounce of Epsom salts, and if it should not operate in three hours, the dose to be repeated. The lead was now discontinued, and the blister ordered to be dressed with simple cerate.

Sunday, 12th, 11 o'clock.—Continued to improve; the medicine operated freely; fever abated; tongue not so brown; no medicine required.

Wednesday, Feb. 22d.—The patient was now walking

about the house; the paralysis relieved; occasionally she was ordered small doses of laudanum, and the Epsom, or Glauber salts, with the view of keeping the bowels open and carrying off the effects of the lead.—She complained of head-ache and pain across the chest; I ordered her to be bled, and an ounce of Epsom salts; no other medicine required.

Friday, 24th.—Did not complain, excepting general lassitude and fatigue; tongue clean; appetite good; slept well; pulse soft and natural; the blood-letting relieved the pain in the head and chest.

Remarks.—We have every reason to believe this woman is now cured of the above formidable disease. The lassitude and fatigue she at this time laboured under is a natural consequence of the severe shock her system received, from the very violent and repeated convulsions during the disease; and also from the immense quantity of lead she had taken, being three hundred and thirty grains of the acetate, and four ounces of Goulard's Solution in four days; besides the application of the lead externally. From the experience I have had in this case, I am induced to believe that the early application of the lead externally, through the medium of blisters, would be more prompt and decided, as it may be observed from the foregoing report, that it was not until Friday that she became completely paralysed; and then only the limb to which they were applied; and on that night the paroxysms ceased; she slept well, and ate heartily on the next morning, from which she had a rapid recovery. I am indebted to Dr. FONERDEN for the suggestion of introducing the lead externally, and I believe it to be an important point in the treatment of this disease; the object being to paralyse the patient, it is of great moment to do it *certainly, quickly, and safely.*

ART. X. *Observations on Superfetation.* By HENRY T. WATERHOUSE, M. D. of Burlington, Vt.

AMONG the unsettled points in physiology, the subject of superfetation is occasionally brought forward. Not so much for the purpose of improving our knowledge in obstetrics as to show us what nature *can*, and in some rare instances actually *does* accomplish.

I have never seen any thing in the human family that looked like superfetation; but the following case in a quadruped convinced me beyond the power of contradiction, that this circumstance does sometimes take place; and "*facts*" are said to be "stubborn things."

MR. JOHN VERNAL, who has for many years past kept a public-house in Chataugua, on the road leading from Malone to Plattsburgh, had a fine promising heifer, of his own raising, three years old, big with calf in the spring of 1811. On or near the first of April, this heifer drank a large quantity of strong syrup, (sap of the sugar-maple boiled almost to molasses.) She immediately became indisposed; was unwilling and unable to move; and remained in this torpid and weak situation until after she calved, which was in about ten days from the time of drinking the syrup. She gradually regained her health, and through the ensuing summer and fall proved to be an excellent cow for the dairy. She went to bull in the first week of June following. Of course she should have calved near the fore part of March, 1812. By the last of February, 1812, her udder had become very large, the external labia were swollen, as is usual with cows at such times, and she had every other appearance of calving shortly. About the middle of March she grew inactive and weak; disinclined to motion; and her bag had become flaccid and much smaller. *She did not calve.* By the middle of April her udder had become small as at the fore part of winter when she gave no milk; she had regained her health, but her abdomen remained uncommonly large.

Mr. Vernal turned her to pasture with his other cows, and

began to milk her daily. At first the milkers obtained only one pint at a milking, but by the middle of June they got as much from her as from any other cow belonging to the dairy. She gave a goodly quantity till into the winter following. In the first week of August, 1812, she again took bull, and was well and in good condition through the winter ensuing. By the fifth of May, 1813, her bag had become very large and full; she again had every appearance of calving immediately. At this time Mr. Vernal confined her alone in a small lot or enclosure, free from holes, brush, weeds, and every thing of the kind. "Determined," as was his expression, "to know what in the devil's name became of her calf." Her bag began to lessen in bulk, but he gave directions to have her milked, and by the last of the month, (May,) she yielded her usual large quantity of milk. He frequently saw her making exertions to free herself of her uterine burden: but all to no effect. Her health and her general appearance became very fine.

In the last week of August following, in attempting to escape, by jumping over the bars of her enclosure, she was so much hurt as to occasion her death in less than an hour. Mr. V. skinned her, and cut open the abdomen. He found within the uterus a calf whose hair was two inches long. From all the back of this calf the hair had penetrated, in other words, had *grown through* the parietes of the uterus, which were in this part as thick and as firm as sole leather. The remainder of the uterus he afterwards found, was soft as is common.

The appearances of this calf were singular. It was coiled into very near the shape of a ball. Its horns had appeared. Its hoofs were large, hard, and brown. Its countenance was that of a yearling. Mr. V. was obliged to use much exertion before he could disengage this calf from its *hairy* connexion with the matrix.

Shortly after removing the first calf, or *yearling*, that should have been, Mr. V. took hold of the head and fore-legs of *another calf*, and drew it out likewise *from within the womb*. This had every appearance of a calf at its first com-

ing into the world. Its hair was short and sleek. Its hoofs soft and white. Nothing was discovered about either of these calves differing in the least from healthy and perfect formation. But in every respect, excepting that there was no perceptible difference in size or bulk, their looks and appearances were as dissimilar as the looks and appearances of a yearling and of a calf when first dropped. It ought to be added that each calf was inclosed in its own proper and distinct set of membranes.

I am not unmindful that some among our ablest writers on midwifery of the present day, disbelieve in the doctrine of superfetation; but the foregoing case comes so much in the shape of "proof positive," as in my humble opinion to place the thing beyond the reach of question or doubt.

REVIEWS.

ART. XI. *An Essay on Tetanus, founded on cases and experiments*, by JOSEPH SWAN, Member of the Royal College of Surgeons, and Surgeon to the Lincoln County Hospital. London, 1825.

“INHUMANA calamitas, injucundus aspectûs, triste intuenti spectaculum, et malum insanabile.” Such is a translation of the words of the celebrated ARÆTÆUS, in reference to the disease forming the subject of the essay before us, and, we believe, that on the whole they will be regarded as the expressions of truth; for although the recent improvements in therapeutics will not allow us now to admit that tetanus is in all instances, and under all circumstances beyond the control of medicine, we are disposed to believe that few who have witnessed the disease, will refuse to pronounce it one of the most formidable and horrid among those incident to our species as well as to the brute creation.

The pathology of tetanus, is as yet so involved in obscurity, and its treatment in consequence so unsettled, and, in almost every instance, so empirical, that we cannot be astonished to find every author who has made it the subject of his researches, has entertained a different opinion respecting the parts primarily affected in it, or in regard to the *nature* of the morbid lesion, and establishing different practical indications, or recommending, generally with high encomium, the use of a particular remedy.

In consequence of this great diversity of sentiments on the subject, every physician at all interested in the progress of his art, must hail with much pleasure any attempt to elucidate the true character, point out the seat, and ascertain the remedies most likely to succeed in the treatment of this terrible malady. It is from a desire of conveying to the readers of this Journal the most recent information we are able to collect on this important subject, that we have taken up the

present volume, with the intention of laying before them the views of its author respecting the pathology and treatment of tetanus. We do it with so much the more pleasure, as Mr. SWAN is already advantageously known by many former essays, and because on a perusal of the present work we find that he has for the most part adhered to the judicious plan of deducing his theories from observed facts. We do not pretend to assert, however, that Mr. Swan has *proved* satisfactorily the correctness of all his conclusions. All we mean is, that he deserves to be heard, because, to use his own language, when the nature of a disease is not understood, we consider any new anatomical facts relating to an alteration in the appearance of important parts to be of infinite value, as they may either of themselves, or by leading to a different mode of investigation, be the means of explaining correctly what appeared before so mysterious.

From the belief that it is of considerable moment to ascertain in what manner the body is usually affected by injuries and diseases; and that without this knowledge, it is impossible to understand the nature of tetanus, Mr. Swan devotes a considerable portion of his little volume to an inquiry into the nature of constitutional irritation. He very judiciously remarks that when a severe injury has been received, the whole body becomes sympathetically affected, and the functions of every part, though more particularly of the digestive organs, and the heart and arteries, are more or less disturbed. There is not only a disordered state of the functions of important parts at a distance from the seat of injury, but dissection reveals a great change in their appearances. With the view of showing the truth of this assertion, Mr. Swan relates the case of a girl who was severely burnt by her clothes catching fire, and died early on the second day. On dissection, the lungs and aorta were found slightly affected, the pericardium contained some fluid; there was an increased redness of the omentum; some spots of redness on the villous coat of the stomach, and about six inches of the jejunum highly inflamed. "All the ganglia of the grand sympathetic nerves in the chest, were vascular on the right

side, the semilunar ganglion, and all the rest of the ganglia in the abdomen, were very vascular; on the left side, the semilunar ganglion, and the first in the abdomen, formed by the continuation of the grand sympathetic nerve, were very vascular, but the others were not. The nerves of each axillary plexus were very vascular. The sciatic nerves within the pelvis, and the anterior crural nerves, were vascular, but not near so much so as the axillary plexus." Mr. Swan further relates a case of fracture of the head of the thigh bone in an old lady, which after a few days proved fatal, and presented on dissection a similar inflammatory state of the nervous membrane of the stomach and bowels and of the semilunar ganglia. From these facts he thinks himself justified in concluding that "after every accident in which the constitution sympathizes with the injured part, the ganglia of the grand sympathetic nerves become irritated, and the functions of the parts supplied by them with nerves are disturbed in consequence. The action of the heart is increased in proportion to this degree of irritation in them, so long as it continues moderate."

In order, however, to test in a satisfactory manner the correctness of this conclusion, our author determined to produce constitutional irritation, and observe its effects in the internal parts, and with that intention instituted, agreeably to the fashion of the day, a series of experiments on animals. These experiments consisted, in some cases, in introducing different irritating substances into wounds inflicted in various parts of the body of dogs, and in other cases, in causing to them severe injuries, by which inflammation and its consequences were brought on. The suffering animal after a certain time was killed, and the state of the internal organs ascertained by dissection. The results were as follows:—In two instances a certain quantity of arsenic was introduced in wounds on the backs of two dogs, which in one of the cases occasioned spasmodic movements in various muscles; in the second case there was much thirst. The animals were hanged, and on dissection, the first case showed inflammation of the ganglia of the sympathetic nerves, with inflammation of the stomach and bowels, and ulceration of the former. In three cases

gamboge was inserted instead of arsenic in order to obviate any objections that might be made to this article. After a few days one of the animals was hanged, the second shot, and the third died after having suffered violent spasms of all the muscles of the body. They had all experienced much thirst, had lost their appetite, and one had vomited and been purged. Dissection revealed in the first case, great vascularity of the first thoracic ganglion, and much more redness than natural of the semilunar and other ganglia of the right side, and less of the other. The stomach was contracted, and its villous coat as well as that of the intestines highly injected. In the second case the ganglia of the grand sympathetic nerve had great vascularity. There were red patches on the mucous coat of the intestines. In the third case all the ganglia of the grand sympathetic nerve were highly inflamed. The stomach near the pylorus was red on its inner surface, and presented black spots and ulcerations. The intestines were similarly affected.

In the three succeeding experiments, the animals had compound fractures of one of their limbs. Two were hanged and the third was shot. In the first and third there was loss of appetite and great thirst. In the first there were involuntary contractions of most of the muscles of the body, and in the second constant spasms in the broken limb. On dissection the following appearances were revealed. In the first case, the ganglia in the abdomen, particularly on the right side corresponding to the injury, were vascular. The stomach was red and the intestines inflamed and ulcerated. In the *second*, there was vascularity of the first thoracic ganglion and of the semilunar ganglia. The stomach was inflamed and the intestines still more so. In the third animal, only a very slight vascularity was found in the semilunar ganglia; but there was considerable redness of the villous coat of the stomach, and patches of the same colour in the intestines. In the ninth and last experiment, a piece of oxyde of arsenic was inserted in the left side of the middle of the back of a puppy, and left there from the 17th to the 21st of April, when the animal, which was then nearly paralytic of his hind

legs, was drowned. On examination, the left pleura was found highly inflamed and covered with coagulated lymph, whilst the right remained free from the disease. The ganglia of the sympathetic nerves were not in the least inflamed.

It results from these experiments, therefore, that in all but one, the stomach, or intestines, or both, were found inflamed, or in a state approaching to it, and that in every instance in which these organs were so affected, some or all the ganglia of the great sympathetic nerves were in a state of congestion—probably of inflammation. But we must confess that we cannot find that from these experiments, Mr. Swan is justified in concluding, that after *every* accident, in which the constitution sympathizes with the part injured, the ganglia of the sympathetic become irritated—since in the last experiment detailed, the local injury sustained by the animal, was as violent as in many of those that preceded, and the system was evidently secondarily affected, as shown from the loss of appetite, uneasiness, and paralysis of the animal; still, however, no morbid lesion could be detected, on dissection, in the ganglia. A question might here arise, from the results of these experiments, which would be, whether the affection of the mucous membrane of the stomach and bowels, was only the *effect* of the inflammation of the ganglia, or whether we should not, on the contrary, view it rather as the *cause* of the condition of the ganglionic system. This is a question of some importance to determine, as it might perhaps lead to some modification in the plan of treating those causes of constitutional irritation supervening from local injuries. Our author is inclined to support the former hypothesis, but has adduced not a single fact to prove its correctness. For our part, we are not inclined to espouse one side of the question or the other. We must here observe, however, that were Mr. Swan's opinion correct, we ought naturally to expect to find the affection of the mucous coat *proportioned* to the degree of disease discovered in the ganglia, which is not the case; since in the eighth experiment there was a *slight* vascularity of the ganglia, whilst on the contrary the stomach was highly inflamed. But the question might, we believe be

settled, by introducing into the stomach of animals poisonous and acrid substances, which are known to affect *primarily* the villous coat of that organ, and ascertain after death the state of the ganglionic system: and indeed it must be confessed, that one disposed to adopt an opinion different from that of Mr. S. might with some degree of justness oppose to him his own experiments with the *nux vomica*, a substance well ascertained to inflame the stomach. These experiments we shall detail in the subsequent part of this review, and can only add here, that those we have already adverted to, confirm a fact but too often neglected by medical men, viz. that after accidents in which the system sympathizes, internal and important organs, especially the stomach and bowels, become the seat of serious disease; and that consequently the physician should endeavour to remove or moderate this secondary affection, often more dangerous than the primary one, and avoid as much as possible applying to these affected parts, substances likely to aggravate the irritation under which they labour.

Be this, however, as it may, Mr. Swan, from what he has seen is inclined to the belief, that, "when a very serious accident has happened, and particularly if any of the vital organs have been injured, there is frequently no reaction in the system, and especially if venesection has been much employed for the purpose of diminishing the quantity of circulating fluid, and we then do not find any alteration in the appearance of the nerves." In consumption, and complaints attended by hectic fever, Mr. Swan has not found an increased vascularity of the ganglia of the grand sympathetic nerves; but he is of opinion, that if any thing happens to bring on acute inflammation, the symptoms change, and may *cause* an increased action of the ganglia. In another part of his essay he offers the following observations. "Although I am well convinced, from numerous dissections, that the ganglia of the grand sympathetic nerves have a great vascularity, induced only by several medicines and diseases, yet some are inclined to think that this appearance is present in a state of health. In answer to this opinion I beg to observe, that I examined an executed subject immediately after it was cut down, and found

the ganglia of a pearly appearance, and free from any mark of vessels carrying red blood. I have found one ganglion very red from a number of vessels filled with blood, and the corresponding one nearly white; and I have so often observed this difference, and in such a marked degree in the same subject, as to leave no more doubt in my mind of its being the effect of a state of inflammation, or something bordering on that state, than there is of similar appearances constituting the inflamed conjunctiva of one eye, and the uninflamed state of the other."

Mr. Swan next proceeds to the consideration of tetanus. This disease, he remarks, is divided by nosologists into idiopathic and traumatic; the former arising from cold or some other cause that disorders the general health; the other being also sometimes occasioned by the action of the same cause, but complicated with a wound or injury of some part of the body. The symptoms of both varieties are precisely the same, consequently their *nature* is the same; the only difference existing between them being in respect to *degree*, the idiopathic appearing more simple, and in general more under the control of medicine than the traumatic.

With the view of arriving at a knowledge of the nature and seat of the disease, he relates a few cases, and describes with minuteness the appearances discovered after death. In the first case, the following were the most interesting circumstances observed on dissection. "On opening the abdomen, a considerable volvulus was found in two portions of the small intestines. The intestinal canal was laid open through its whole extent. The stomach exhibited nothing remarkable, and contained only a little fluid and a few portions of submuriate of mercury. The villous coat of the small intestines throughout, had marks of having been in a state of great irritation; many very vascular patches were observed on it, and it was loaded with green and yellow slime and mucous; at the superior extremity of each volvulus, several lumbrici were lodged, and others were found in different parts of the canal." Nothing remarkable was observed in the lungs. "The ganglia of the grand sym-

pathetic nerves were examined with very minute attention. In all of them there existed decided marks of irritation. The vessels usually pale and colourless, were injected with red blood, and the same was observed in some of the intermediate portions of nerves. The vascularity could be distinctly traced before their removal from the body, and immersion in cold water for some time did not diminish it. The left semilunar ganglion exhibited a few vessels, but the right was injected in a beautifully minute manner, quite as much so, when seen through a magnifying glass, as the conjunctiva in a state of high inflammation. The same distinction, though not in the same degree, was observed between the two sides, in all the portions of the grand sympathetic nerves which were examined." The pia mater of the brain and of the spinal marrow, was found minutely injected with blood. Fluid was found in the ventricles of the brain, and in the sheath of the dura mater of the spine.

In the second case related by Mr. Swan, the patient recovered after vomiting naturally bile and mucous. The third case is borrowed from LOBSTEIN,* and exhibited the following appearances on dissection. "On opening the body, nothing was found but a vascular net-work filled with blood on the surface of the medulla spinalis, and a quantity of serum effused within the sack formed by the matter, and a very distinct inflammation of the semilunar ganglia." The next cases noticed, are taken from M. ANDRAL, jr.† who observes that in two individuals who died in 1819, with very decided ataxo-dynamic symptoms, he found the semilunar ganglia having a remarkable redness, which appeared throughout to be produced by a very minute injection of the cellular tissue interspersed between the small grains of which the ganglia are composed. "One of the individuals had presented, during the last forty-eight hours of his life, violent trismus, and a tetanic rigidity of the superior extremities."

Mr. Swan next gives us the details of three experiments

* *De nervi sympathetici humani fabrica usu et morbis*, p. 152.

† *Clinique Medicale*, t. i. p. 419.

he performed on animals. To these he exhibited repeated doses of *nux vomica*, by which spasmodic and tetanic contractions, more or less violent, in the muscles, were produced. On dissection, the ganglia of the grand sympathetic nerves were found injected with blood. The pia mater of the brain, and medulla spinalis, was likewise highly injected; the mucous membrane of the stomach was vascular, and that of the small intestines red in patches.

On the subject of traumatic tetanus, Mr. S. remarks, that if it always followed a very painful or extensive wound, there would be an apparently satisfactory reason for its violent symptoms; but as it likewise supervenes on a trifling injury, or a wound that is nearly or entirely healed, there is the greatest difficulty in comprehending how it is produced.

“With a view of removing as much as possible,” continues Mr. S. “this obscurity in the production of traumatic tetanus, I have been induced to inquire how the body is usually affected after accidents. From that inquiry I have been led to state, that when a severe injury has been received, the ganglia of the grand sympathetic nerves become irritated, and consequently the parts to which they distribute nerves. When the constitution is healthy, I believe the irritation of the ganglia goes off in a few days, and then the parts supplied by them with nerves, return to a state of quietude, and again perform their healthy functions.

“When the ganglia of the grand sympathetic nerves have been thus affected, and the irritation has subsided, an unhealthy action in the wound may excite a fresh irritation in them. Or even if the wound be healed, the passions, improper food, and other causes, may continue, reproduce, or increase the disordered state of the organs, receiving nerves from the ganglia, and thereby excite a fresh irritation in them.

“When the ganglia of the grand sympathetic nerves have once been in a state of irritation, I believe they are very susceptible of its renewal. When they have become again irritated, we can readily conceive that the irritation may be communicated to many of the cerebral and all the spinal

nerves, and from them to the medulla spinalis, and we can then comprehend how tetanic spasms may be produced."

In confirmation of the views offered in this extract, Mr. Swan presents two cases of the disease, and describes minutely the morbid lesions discovered after death. The first case, (John Patrie,) was occasioned by a severe burn, which extended over several parts of the body. On the ninth day after the accident, tetanic symptoms supervened, and the patient died on the next day. On dissection it was discovered, that "the dura mater adhered to the skull with unusual firmness. When the dura mater was removed at the top of each hemisphere of the brain, there was a granular appearance, which felt rough. The vessels of the brain were much loaded with blood. The pituitary gland was unusually soft. Every other part of the brain was perfectly healthy."

"In the spinal canal, within the sheath formed by the dura mater, there was a small quantity of fluid. The vessels of the pia mater, and especially near the cauda equina, were much loaded with blood. The medulla itself felt rather firmer than usual; but it had not the least unhealthy appearance.

"All the ganglia of the grand sympathetic nerves in the chest were very vascular. The right semilunar ganglion was rather more vascular than usual, the left had a pearly appearance, and was entirely free from any mark of blood vessels, there was a little redness in a few of the other ganglia in the abdomen." "The villous coat at the cardiac extremity of the stomach was exceedingly vascular, and on this part there was a large spot of ecchymosis."

In the second case, the patient, (Richard Burton,) pierced with a spike the joint between the metacarpal bone and first phalanx of the little finger. Three weeks after he was seized with tetanus, which on the sixth day proved fatal. On dissection it was found that the sheath of the medulla spinalis contained a small quantity of limpid fluid. "Many adhesions were found between the loose tunica arachnoidea, and that lining the dura mater. On the loose tunica arachnoidea there were a few small spots of cartilaginous matter. The veins of the pia mater were much loaded with blood. The medulla

spinalis was divided in many places, and appeared perfectly healthy; but in the beginning of the dorsal portion, there was a spot of coagulated blood of the size of a small pin's head in the midst of the medullary substance. Many of the ganglia of the spinal nerves were examined, but they did not exhibit any altered appearance." "There was an effusion of bloody serum between the tunica arachnoidea, and pia mater of the brain, at the situation of the squamous portion of each temporal bone. The veins were turgid, but there was not any diseased appearance in the brain." "The villous coat of the stomach, especially at the cardiac extremity, was exceedingly vascular."

"The par vagum in the neck was quite healthy, but at the root of the right lung the nerve had an increased vascularity, which did not exist in that of the opposite side. There was an enlargement and a greatly increased vascularity of all the ganglia of the grand sympathetic nerves in the chest, and also of the semilunar ganglia; in several of those in the abdomen, the same appearance existed only in a less degree, but in some there was neither the least redness nor enlargement."

We have been thus particular in extracting from the essay before us, an account of the dissections on which Mr. S. thinks himself justified in grounding his particular views respecting the irritation of the ganglia, as the first link in the chain of morbid action which produces tetanus, in order that our readers may judge themselves of the degree of weight we should attach to this hypothesis. Having thus offered his opinion respecting the nature of tetanus, Mr. S. next proceeds to offer a few observations on some of its symptoms, and the parts which appear to be implicated in the disease; and then inquires what inferences may be drawn from them as relating to the most probable method of cure. He observes that the cause of the spasms, or at least of their continuance, seldom exists in the injured part; for if this be removed, a slight alleviation sometimes ensues, but the spasms generally return with the same violence. After noticing that the muscles implicated in the disease are supplied with nerves both from the brain and medulla spinalis, he asks the question whether from

this circumstance, it is to be presumed that both these organs are in the first instance affected or only their nerves. In regard to the part which the brain plays in this disease, he calls attention to the fact, that the functions of this organ are seldom disturbed except towards the close of the disease, and that in some instances they remain perfect throughout: and this he thinks the more extraordinary, as the muscles connected with mastication and deglutition, which are generally first affected, derive their nerves principally from that organ. The vascularity of the pia mater he thinks only secondary, and an effect of the general disturbance. He entertains the same sentiment in regard to the affection of the pia mater of the medulla spinalis. This appearance, he confesses, shows that great irritation existed there; but in his mind there could not have been inflammation, or we should more frequently see its consequences—effusion of coagulable lymph and purulent matter, and more or less paralysis. Nor could we, were this condition of the medulla to exist, account for speedy recoveries from the disease in the human subject, or after leaving off the extract of *nux vomica*.

In continuation he says, “as the disease attacks the muscles supplied with nerves both by the brain and medulla spinalis, and neither of those organs appear in the first instance to have their functions disordered, we may fairly conclude that the cause resides in some other part:” and this other part, as we have already seen, he considers to be the ganglia of the grand sympathetic nerves, which communicate freely with the nerves supplying the muscles usually affected. “According to the violence or mildness of the disease, I conceive the irritation is confined to the ganglia and some of the cerebral and spinal nerves for a certain space; it is then communicated to the membranes of the brain and medulla spinalis, and sometimes causes so great an effusion of fluid as must add to the danger and may produce sudden death.”

Having thus presented, in his own language, Mr. Swan’s opinion respecting the seat of the morbid condition giving rise to tetanus, we may, without fear of having misconstrued

his views, proceed to offer a few remarks on the subject. After a careful examination of Mr. Swan's sentiments, and of the facts on which he has thought himself justified in founding his hypothesis, we must confess that in our humble opinion he is very far from having so settled the point as to have placed it beyond a doubt. Even by making use of his own words, we think he might be shown to have advanced more than he could prove. Thus he tells us that when the ganglia have become irritated, we can readily conceive that the irritation may be communicated to many of the cerebral and all the spinal nerves and thence to the medulla spinalis, by which tetanic spasms may be produced; from which we conclude, that even in Mr. Swan's opinion, the cerebro spinal system is the true seat of tetanus, or at least, that he regards it necessary that the irritation should extend to the spinal marrow in order to give rise to tetanic symptoms. If this inference be correct, his hypothesis falls to the ground; because, where it is admitted that an irritation seated in a given part of the body, by extending to another part gives rise to a certain train of symptoms, we are surely not justified in referring to the part primarily affected for the disease; since had not the irritation extended to the second, the symptoms would in all probability not have appeared. Again, it might be said, that as it is admitted that irritation can and does extend to the spinal marrow from the ganglia, no good reason can be adduced for refusing to admit, that the same morbid process may also extend to the medulla from any other part of the system; or for calling to our aid, in our explanation of traumatic tetanus an intermediate irritation of the ganglia of the sympathetic nerves, when we can readily understand that irritation can and does extend to the spinal marrow, from all parts of the body, without a *necessary* affection of these ganglia.

It is besides a fact sufficiently well established, that in very many cases the ganglia have been found considerably inflamed, although no tetanic symptoms had been noticed during life. One of the cases quoted by Mr. Swan from Mr. Andral did not present such symptoms; the editor of the London Medical Repository, (June, 1825,) informs us that he

has often found the ganglia inflamed on dissecting individuals who had died of yellow and other fevers; and more recently we are told by Dr. Cartwright, in his essay on the fever of Natchez, (Medical Recorder for January, 1826,) that in all his dissections, during the epidemic of 1823, similar morbid appearances were discovered. It follows then, that if irritation of the ganglia alone does not give rise to tetanus, another part must become affected before the symptoms of this disease can be produced. What this part is, physiology enables us readily to find; since whatever notions we may entertain respecting the influence of the nerves, in the exercise of a separate power to contract, inherent in the muscles, and which we call contractility, we are compelled to admit that the muscles cannot *contract* without the agency of the nerves; and that the cerebro spinal system is the receptacle of nervous power—the spot from which the power producing muscular contraction, healthy or morbid, originates.

As we have seen, Mr. Swan offers as a proof that the brain and spinal marrow are not affected primarily that they do not appear, in the first instance, to have their functions disordered; and maintains also that the vascularity of the pia mater of these organs is only secondary, and an effect of the general disturbance. Without enlarging on the inference conveyed in the first part of the preceding sentence, which betrays a want of proper attention to the ordinary effects of diseases of the brain, which are known in many instances to progress to a considerable extent without necessarily impairing the faculties of that organ, we may merely point out the fact, that it is, in some measure, invalidated by the very words of Mr. Swan respecting the *extension* of irritation to the spinal marrow, to which we have alluded above. Besides, could it not be inquired of Mr. Swan what are the functions of the spinal marrow, if not principally, to preside over the action of the muscles of the extremities and trunk? Consequently when we see all or part of these muscles in a state of permanent contraction, are we justified in asserting that the functions of the spinal marrow are not disordered? In regard to the vascularity of the pia mater, we would merely remark,

that if Mr. Swan means to convey the opinion, that it is the effect of a primary irritation of the part, we are willing to coincide with him; if he maintains that the general irritation of the membranes of a brain and spinal marrow are secondary—depending on the extension of an irritation of some other part, we are also prepared to admit the correctness of his opinion; but it by no means follows from this, that this primary irritation must invariably and necessarily be located in the ganglia of the sympathetic nerves, or that it must always co-exist there with the secondary irritation, in order to give rise to the phenomena of tetanus. So far from this, it might very easily be shown, that irritation of the arachnoid, of which Mr. Swan says very little, is adequate of itself, even when situated in the brain, to occasion contraction in the muscles. Of this every one must be aware, who has studied attentively diseases of this membrane, or read the valuable works of MARTINET and LALLEMAND.

Another difficulty presents itself here to Mr. Swan's view of the pathology of tetanus, which we cannot allow to pass by unnoticed. It is this, that in order to sustain his hypothesis, Mr. S. must avow openly and prove, that a primary irritation of the brain and spinal marrow, or of their membranes, never occasions tetanic symptoms without the co-existence of a ganglionic inflammation—a task which would, we think, puzzle him to perform to the satisfaction of all, as he would have to contend with the best authorities in medicine, and disregard numerous pathological facts and experiments that might be adduced against him. Now, if it be well proved, that a primary irritation of these organs, either originating from the agency of ordinary causes of disease, or produced artificially, occasions tetanus, and if, as Mr. Swan himself avows, the irritation when seated in the ganglia, must extend to the spinal marrow to produce the above disease, we leave it to our readers to decide, how far he is justified in maintaining, that in all instances the affection of these organs is secondary, and that the primary link of the disease is located in the ganglia. To admit this we would be compelled to believe, that in the first instance, when the irritation is situated

primarily in the brain and spinal marrow, it extends to the ganglia, and thence is reflected back again to the brain, &c. before giving rise to the disease; a supposition too absurd to merit a serious refutation.

From all these facts and reflections, therefore, we are inclined to believe, that although in demonstrating that the ganglia of the grand sympathetic nerve are found inflamed in cases of tetanus, Mr. Swan has pointed out a *fact*; he is far from having established his hypothesis, and removed the obscurity in which the pathology of tetanus is still involved; and that so far we find no reason for abandoning our former opinion, that this formidable disease must be regarded as arising from an irritation of the cerebro spinal system, either idiopathic or communicated to it by an inflammation of another organ, and either amounting to inflammation, or consisting merely in a nervous irritation.

The next subject to which we must direct our attention is the treatment of tetanus. On this head our author's remarks are not as copious as we could have desired.

We agree with him in the remark that there are few maladies in which the treatment has been more empirical, and the termination more generally fatal. The truth of this is well exemplified by a fact related by Sir JAMES M'GREGOR, that out of several hundreds of cases, which occurred in the British army during the late campaigns in Spain and Portugal, there were very few which terminated successfully, or which the remedies, however varied, seemed to have any beneficial influence, after the disease had made any progress. Consistent with the views he adopts respecting the inflammatory nature of tetanus, Mr. Swan thinks that general bleeding is indicated, and recommends, with a view of removing the congestion of the vessels of the medulla spinalis, that blood should be taken from the back by leeching and cupping. Of the correctness of this last indication we have a striking illustration in a case of tetanus related by Dr. JACQUOT in the third volume of Broussais' *Annales de la Médecine Physiologique*, and which was cured solely by leeches to the spine, and the frequent use of the warm bath.

“The functions of the digestive organs,” says our author, “are very frequently disordered, and as this state must aggravate all the other symptoms, every possible attempt should be made to restore them.” In order to attain this desirable object, and guided by the result of his second case in which the patient revived after vomiting mucus and bile, he suggests the propriety of administering an emetic, “after general blood-letting has been employed, if the mouth be sufficiently open to allow of the ejection of the contents of the stomach.” “After the emetic, or if this has not been used, the patient ought to be purged as soon as possible. A few doses of submuriate of mercury may be given, and any strong purgative, until the bowels are freely emptied.” In respect to the mercurial practice in which some physicians often indulge too indiscriminately, Mr. S remarks, “In experiments on animals, I have found decided marks of inflammation of the grand sympathetic nerves produced by mercury. As there is a similar appearance of the ganglia in tetanus, I cannot help supposing, that the use of mercury is very doubtful, if not altogether hazardous; and so many cases on record in which it has failed to restrain the disorder, show that it cannot by any means be depended on. I am willing to believe that practitioners may have thought it beneficial, because a patient who has used it has recovered. I have seen it administered in chronic tetanus, and the patient has got well; but the recovery was very slow; and whether it had any influence over the disease is most difficult to determine. These observations on mercury may well apply to constitutional irritation.”

When the patient has been well purged, our author thinks it reasonable to suppose that quieting and relaxing remedies may be used, as the *pulvis ipecacuanhæ compositus*, in frequent doses. From this we must infer that he is not a great partisan to the opium practice as pushed to the extreme dose by many physicians of Europe and this country. Mr. Swan has neglected to offer his opinion respecting many internal remedies, or local applications, which by very intelligent and experienced practitioners have been had recourse to with de-

cided advantage; but as this article has already extended beyond the limits we had originally assigned to it, we cannot here supply this deficiency, and therefore conclude our analysis with the promise that on some future occasion we shall offer a condensed view of all the means that have been used with success in the treatment of this dreadful malady.

ART. XII. *An Essay on Venereal Diseases, and the uses and abuses of Mercury in their treatment. Illustrated by drawings of the different forms of Venereal Eruptions.* By RICHARD CARMICHAEL, M. R. I. A. Vice President of the Royal College of Surgeons in Ireland, &c. &c. &c. With Practical Notes, &c. by G. EMERSON, M. D. Philadelphia, 1825.

ALTHOUGH this book comes from the author in the character of a second edition, yet such have been the additions of important matter, and the alterations effected in the general arrangement, that it may almost be regarded as a new work. It is dedicated in very warm terms, to Sir JAMES M'GREGOR, Director General of the Army Medical Department, who has not only espoused the principles inculcated by Mr. CARMICHAEL, but been very active and successful in diffusing them in all parts of the world in which British soldiery are stationed.

It is now more than ten years since the first edition was laid before the public, since which a very great revolution has been effected in the treatment of syphilitic diseases, in the accomplishing of which our author has been the chief instrument, though great credit is certainly due to the exertions of Sir JAMES M'GREGOR, and to Drs. THOMPSON, HENAN, ABERNETHY, FERGUSON, ROSE, and GUTHRIE, to which list it would be easy to add several respectable names on this side of the Atlantic. The respective views entertained by these, though not entirely alike, all tend to the same general purport, that of lessening the inconvenient and destructive effects occasioned by the improper use of mercury, and, by

performing cures with more certainty and less injury to the constitution, greatly ameliorating the condition of those who are so unfortunate as to be afflicted with venereal affections.

Charged with the duties of an attendant surgeon to the Dublin Lock Hospital, which is probably one of the most extensive institutions to be found in Europe, exclusively dedicated to the reception of venereal patients, Mr. Carmichael has been long industriously, and we think very successfully, engaged in throwing useful light upon a subject, which, though already investigated by the best professional talent, has certainly not kept pace with medical science in general. The result of his able researches are again set forth with important accessions and increased confidence acquired from ten years further experience. For the purpose of rendering the work complete and useful as a book of reference, the American editor has made many additions, and several of his notes furnish practical information upon subjects not embraced by the author, but yet necessary to the completion of the subjects.

Mr. Carmichael, as the title of his book indicates, believes in a plurality of venereal diseases, which he classifies according to the external characters of the eruption produced by their secondary state, and which, it may be observed, is the plan adopted generally by nosologists, in classifying all other morbid poisons distinguished by eruptions. Other attending symptoms are not overlooked, though they are regarded as only auxiliary and of minor importance in comparison with the cutaneous evidences. After the eruption itself, he looks upon the characteristics of the primary ulcer, when not altered by irritation or other causes, as the best guide or symptom whereby to determine the nature of the disease. The four several kinds are treated of and arranged in the following order, viz.

- I. The *papular* venereal disease, so called from its being attended with a papular eruption which ends in desquamation, pains in the joints resembling those of rheumatism, soreness of the fauces, and frequently swelling of the lymphatic glands of the neck, all of which are the sequelæ of the *simple ulcer*, without raised edges, induration, or phagedenic surface, and

likewise of gonorrhœa virulenta, and excoriation of the glans and prepuce.

II. The *pustular* venereal disease, from the attending pustular eruption, which terminates in ulcers, covered with thin crusts, and like common sores, healing from their margins; which symptoms are the products of a primary ulcer, characterized by *elevated edges*.

III. The *phagedenic* venereal disease, the title of which sufficiently explains the nature of the primary and secondary symptoms. It is attended with spots having less of the pustular character than the preceding class, and frequently with tubercles terminating in ulcers covered with thick crusts, which extend with a phagedenic margin, and usually heal from their centre, symptoms which with other attendants are distinguished by peculiar obstinacy and malignancy.

IV. The *scaly* venereal disease, so called from its permanent scaly eruption. The *primary* ulcer is described in the words of JOHN HUNTER, as "somewhat of a circular form, excavated, without granulations, with matter adhering to its surface, and with a thickened edge and base; this hardness or thickening, is very circumscribed; not diffusing itself gradually and imperceptibly into the surrounding parts, but terminating rather abruptly." It is this form alone which Mr. Carmichael recognizes by the name of Syphilis, a term extended by other writers to every description of venereal disease.

These classes, he believes, all originate from distinct poisons, and although he admits that of the three first, some or all were known to the ancients, he firmly maintains that the fourth, or *scaly* kind was introduced into Europe by the followers of Columbus. From this last opinion the American editor dissents, expressing his belief that all the *forms* of syphilis are just as ancient as the vice of promiscuous venery, and liable to be produced by the same identical virus.

One of the most important objects attempted by Mr. Carmichael, has been the discrimination of cases in which mercury may be advantageously administered, from those in which it would act injuriously and ought not to be employed,

a point upon which the basis of venereal practice for the most part rests. Placing the forms of syphilis, as LINNÆUS taught us, in the class of exanthemata, he has adopted the rational plan of treating them upon the general principles of pathology. In his first edition he supported the opinion entertained by HUNTER and ABERNETHY, that the *scaly* form, or as he thinks it, *genuine syphilis*, could not be radically cured without mercury. He has, however, since been induced to retract this opinion, and now believes, that it, like all the other forms, may be cured without. He nevertheless bears the strongest testimony in favour of the utility of mercury when judiciously administered, that is to say, when given at the proper time, and regulated by the principles and rules which he lays down. The practice detailed in the several chapters of his treatise, and illustrated by a variety of interesting cases, appear no less novel than successful, and it is not the least advantage this rational treatment may boast of, that it permanently heals the patient without leaving his constitution impaired. To give a fair view of the various curative intentions and the manner in which they are severally met, would occupy more time and room than can be now devoted. Those much engaged in the management of the diseases of which Mr. Carmichael treats, will not be satisfied without an attentive perusal of a work which must certainly be regarded as an important acquisition. This outline can only gratify the curiosity of the more general reader. We cannot, however, close this article, without tendering our acknowledgments to the editor for having brought the work before the American public, and expressing more distinctly than we have yet done, our entire approbation of the manner in which he has executed his task. The notes he has added, are numerous and exceedingly valuable, sometimes critical, though more generally practical, and are written in a style highly appropriate from its terseness and perspicuity.

QUARTERLY PERISCOPE.

EUROPEAN INTELLIGENCE.

SURGERY.

*Dr. Ammon on the Surgery of the Eye in France and Germany.**—The following paper on the state of ophthalmic surgery in France and Germany, cannot fail to interest all our readers who have attended to this rapidly improving branch of professional knowledge and skill.

“In France the knowledge of the diseases of the eye remains stationary at that point which it long ago attained, whilst the Germans are cultivating this branch of medicine with greater zeal, and are striving to bring it to the highest point of perfection. A general view even of ophthalmic science in France, as it now exists, will be sufficient to confirm this statement; and a closer insight into the practice of the French oculists, gives the sad result that it contains nothing but the glory of their ancestors—that it is the same as in former times. With us, on the contrary, this science has reached a point, which may be truly called the culmination point—what was formerly prepared by Barth, Richter, and others, has been brought near to perfection by Beer, J. A. Schmidt, Himly, Von Walther, Langenbeck, and Gräfe. Since the beginning of the present century, ophthalmic surgery in Germany has taken a peculiar direction—on the one hand, it has become an independent science, and on the other, it has been considered more in relation to the whole organization. The connection, however, of ophthalmic surgery with surgery in general, scarcely exists in France. Both are separated, and when a few celebrated surgeons occupy themselves with dis-

* Gräfe und Walther's Journ. für Chirurgie.

eases of the eye, they are exceptions to the general practice, and confine themselves merely to the operative part. Even in the year 1822, the charlatanery of several oculists in Paris could scarcely be exceeded. At the corner of the streets there was no lack of advertisements from the *medecins-oculistes*, announcing their eye ointments, *pommades antiophthalmologiques*, and lotions, and particularly boasting of their talents. The announcement of a *M. G. de la Chanterie, célèbre medecin-oculiste*, was to be found in all coffee and eating-houses, and was even sent to all strangers at their own lodgings; and in several of the provincial towns this species of quackery was, if possible, still carried to a higher pitch.

“In France there are no particular institutions whatever for the purpose of forwarding the study of the diseases of the eye. Notices of lectures on this important branch of medical science, are to be sought for in vain in the catalogue of the celebrated Faculty of Medicine at Paris; they were formerly attempted, but did not succeed. The diseases of the eye are treated in the lectures as a part of external pathology. As far as regards the literature, there certainly are not wanting new works and compendia, in which the eye-diseases are treated apart from the rest of surgery; we will only name here Delarue and Demours. But a comparison of these works with those of Guillemeau, Maitre Jan, de St. Yves, and Guerin, clearly shows that they have not advanced beyond that point which their forefathers had obtained, whilst Demours, with a succession of tediously long cases, and a number of questions and answers, leads the reader to no conclusion, but tires his patience—Delarue endeavours to make up for the deficiency of his materials by the most extraordinary declamation. Since the year 1819, there has existed a French Journal for diseases of the eye. Guillie began it with the title of *Bibliothèque Ophthalmologique*, with the assistance of Dupuytren, Alibert, Pariset, Lucas, and Nauche. This journal has undoubtedly for its object the promoting in France, that study which unfortunately has been there too much neglected; but its plan appears but ill-suited for the accomplishment of this purpose. This journal, instead of beginning with establishing a scientific symptomatology of the diseased eye, a thing so much wanted in France, enters directly on the treatment of diseases, with the pathology and nature of which the French appear un-

acquainted. Instead of commencing with a natural division of the different kinds of ophthalmia and their diversified treatment, it immediately recommends certain empirically tried remedies, or contains the history of some operation. 'Inflammation of the eye, with its consequences, is a wide field for the oculist. Every one flatters himself with knowing it; the lowest man in the profession knows how to speak of rose-water and sugar of lead, but it is granted only to a few to have a clear insight into this branch of ophthalmic diseases.' This assertion of Dr. Wenzel's, (Lib. sup. cit.) severe as it is true, is characteristic of the ignorance of the French oculists. Guillie could have taken no better motto for his journal than the following passage from Bacon—'*Frustra magnum expectatur augmentum in scientiis ex superinductione et insitione novorum super vetera, sed instauratio facienda est, ab intimis fundamentis, nisi perpetuo libet circumvolvi in orbe cum exili et quasi contemnendo progressu.*' *Nov. organ.* 31. The French literature contains no compendium which answers to the demands of all. Had Delarue considered that the eye can only be examined by the eye, he would not have failed to enrich his work with a better symptomatology, and more certain rules for distinguishing between the different diseases. Demours' abridgment from his large work has the same fault which is censured with so much justice in his larger one. What Roux, Lassus, Richerand, and Boyer, contain on diseases of the eye, in their works on surgery, is in part not complete, and in part taken from the work of Wenzel and others. Sabatier, in his operative medicine, has given, in the first edition of that work, every thing which relates to the operative part of the eye, in a very creditable manner, but in the new edition, by Begin and Sanson, this part is considerably neglected. Works on any particular diseases of the eye are of a very rare occurrence in France, and with the exception of Guillie's work on cataract and amaurosis, no similar work of the kind has of late appeared, unless we except some inaugural dissertations from the candidates for degrees at Paris or Montpellier. The impulse given to the study of physiology in France, has brought some important and yet disputed points on the physiology of the eye under examination. Besides Magendie's investigations on the mode in which substances are reflected on the retina, the nature and substance of the iris have

been examined, together with the nourishment of the lens, and the existence of the liquor Morgagni. It would lead us too far from our present purpose, were we to enter into an examination of the opinions of these different anatomists and surgeons. The subject has been treated in Germany by Von Walther, in his ciliary-nervous system, and Gräfe in his observations on the use of the ciliary processes, and several others, whose works are familiar to our readers. Any work, however, equal to that of Soemmering's, or Zinn's, is not to be found in the French literature. And it is quite a matter of surprise, that in neither of the two countries, (France or Germany,) where anatomy is cultivated with such zeal, has a work on the surgical anatomy of the eye appeared.

“ Although there exists in Paris several excellent institutions for the education and provision of the blind, there is not one single institution solely for the reception of eye diseases, and in none of the large hospitals in the metropolis are there any proper arrangements for the treatment of these affections. The complaint which Wenzel, eight years ago, made respecting this shameful neglect, we must now repeat. Particular apartments, with suitable arrangements respecting the admission of light, &c. for the treatment of diseases of the eye, are not to be found in any hospital. Every unfortunate patient is dispersed throughout the wards, protected only from the influence of the light and draughts by the bed-hangings, so that the disease is as frequently made worse as it is mended. The difficulties which prevent the necessary arrangements for treating diseases of the eye in these institutions are unknown to us, but it appears as if no one wished them to be otherwise. Since the erection of ophthalmic institutions, the study of diseases of the eye have taken a high and fixed direction, and this epoch is one of the most important in the history of this science. No where, however, is this change seen in a more extraordinary manner, than in the history of ophthalmic medicine in England, which, since that period, has undergone a complete change, and is in every respect improved. To the neglect of this point, we think, must be attributed the fact of the French being behind both the Germans and English in the knowledge of ophthalmic medicine.

“ We will now turn to the merits of the French in ophthalmology, and in the treatment of ophthalmic diseases. The

important points respecting the inflammation of the eye, are very superficially treated in the French literature. With the exception of De Febure's monography, or Treatise on this subject, we are not acquainted with any similar work of the kind. Nor has the contagious ophthalmia, which has so much occupied the attention of medical men of late years, a better fate. Although the French armies suffered most dreadfully from this complaint, although the French invalid houses were crowded with the blind, who lost their sight from this disease, yet the mode of subduing this disease was never brought under discussion by them; and only Larrey and Desgenettes gave their medical opinions on the disease. Even recently, when this complaint attracted the attention of the French government, and when it became the subject of the researches of several authors, we do not discover among the French that enthusiastic zeal which the Germans have displayed in the examination of this subject, and to which we are indebted for so many valuable investigations into the nature of the disease. The works, from Baltz, in 1815, to Gräfe, in 1823, are known to all Germans, and do not require here any further notice. It may not be amiss, perhaps, to make a few historical remarks respecting the contagious ophthalmia, which do not appear to be generally known. Gräfe, who has treated this subject most thoroughly, believes that here and there traces of a similar disease are to be found in the ancients. (Xenophon's *Anabasis*.) George Bartisch, chief oculist to the Elector Augustus of Saxony, gives, in his work on diseases of the eye, which appeared at Dresden in 1583, descriptions of two kinds of ophthalmia, which, in relation to their symptoms, very much resemble the contagious ophthalmia. Even the dedication page of the book contains a plate of a diseased eye, the appearances of which are extremely similar to the contagious ophthalmia. Bartisch certainly did not suppose that this disease propagated itself by contagion; and he, who was accustomed to examine, according to the time he lived in, with extraordinary minuteness into the causes of this disease, fled to incantation as a refuge, and which he considered as the source of this terrible complaint. The second notice that we have of a contagious ophthalmia having formerly prevailed, is from a work which Haller mentions in the following words:—"Jacques d'Ambrose, *Medici et Chirurgi, an ab Oculis Contagio—Paris, 1605, 4 lego citari.*" Vid.

Bibliothec. Anatomic. t. 1. p. 307. We ourselves are not acquainted with the contents of this work, but we take the present opportunity of drawing the attention of medical men to it, that in the investigation into the history of so dreadful an ophthalmia, they may not lose the slightest help. Several French physicians deny the contagious power of this inflammation. Whilst Delarue does not meddle with this important point, Demours gives it as his opinion, that the contagious complaint is produced by an epidemic influence. Other physicians, among whom I will only name Guillie, are convinced of the contagious nature of this disease.

“Iritis, its causes, progress, and cure, have been thoroughly investigated by the Germans, and they have given certain diagnostic marks, by which the complaint may with certainty be ascertained. If, however, this disease is not unknown to the French physicians, it is very frequently mistaken by them: and if at first the strict antiphlogistic treatment were not adopted against every disease of the eye, the inflammation of this part of the organ of sight, would only too often run through all its stages undiscovered, till the mistake was made known in its dreadful consequences. As syphilitic iritis was first made known to the French by the observations of the Germans, so have they cast on us the unfounded reproach, that we attribute every kind of iritis to a syphilitic cause—wonderful delusion! The term *hippus* enjoys among the French no fixed meaning, as with us, where it is either designated to represent spasms of the iris, or a continued fluctuation of the iris from the posterior to the anterior chamber, and *vice versa*. The situation and form of the pupil, and its colour, symptoms from which so much assistance may be derived in forming a true diagnosis, and the importance of which Von Walther has shown in a classical paper on diseases of the ciliary system, do not meet from French oculists the attention they deserve. Dupuytren, only, is an exception; and his acute perception, and great tact, often enable him to foretell, from these circumstances, what course the disease will take. The diseases of the anterior chamber, in which most inflammatory affections are to be found, have attracted the attention of oculists both in Germany and England; we allude principally to the inflammation of the tunica humoris aquei and its consequences, which in France have been quite neglected. Of all the

different modes of curing opacities of the cornea, Dupuytren's, in Paris, enjoys the most extraordinary fame. It consists shortly of the following means; if there is an inflammation of the cornea, or only of the neighbouring parts, and this is but slight, Dupuytren orders blood-letting, or directs the application of some leeches. Then, in about four days, some gentle purgatives will be given. As soon as the inflammatory symptoms are removed, he orders the following powder to be blown into the eye morning and evening:—*R. Tutix prep. (sac. cond. Calomel; āā.)* This is continued for some weeks, and seldom fails within that time to effect its object. If the opacities are already very old and large, and approaching to a leucomatous nature, then a seton at the nape of the neck is necessary, and the powder is blown into the eye for some minutes at a time.

“In adults, commencing disorganization of the cornea, which threatens to undergo a staphylomatous metamorphosis, is successfully treated by Delarue with caustic lotions. The deceased oculist, Pellier, of Montpellier, states, that he cured in 1779, a leucoma, by means of a seton drawn through the opaque part of the cornea. The seton consisted of a double silk ligature, and was daily anointed with the unguentum basilicum. Delarue also assures the profession, that he has tried the same means with success. If, however, Juvenal's words are not applicable,—

“—— non hic,
Cantatur, res vera agitur,”

still the thing is extremely remarkable, and deserves a more minute consideration. Dupuytren also employs, with success, in very prominent disorganization of the cornea, conjunctiva, &c. gentle pressures gradually increased, which he effects by means of small compresses, made of charpie, and covered with linen; these he makes large or small according to circumstances, and then binds them on to the projecting part. The antiphlogistic plan of treatment is the one generally employed in all diseases of the eye, and Sangrado's assertion, ‘*c'est un erreur de penser que le sang soit necessaire à la vie, on ne peut trop saigner un maladie,*’ is unfortunately echoed by too many. The slightest inflammation of the eye requires, in France, blood-letting; and without leeches, the most trivial catarrhal ophthalmia will not be

treated. In short, the French go into two extremes in the treatment of ophthalmia; generally they employ an antiphlogistic, and locally an irritating plan of treatment. The topical applications in general use are lotions. Cataplasms, also, are more frequently ordered in the French than in the German hospitals. Whilst the blowing of different kinds of powders on the surface of the eye, is entirely done away with in Germany, and the application of these substances by means of a pencil, is substituted for it; one still sees this plan daily employed in the Hôtel-Dieu. Dupuytren is a great friend of this mode of employing local applications, of which calomel is his favourite. Fischer, a German surgeon, several years ago recommended the use of this form of mercury locally, in acute ophthalmia, particularly in corneitis, when it has passed over into the chronic stage, and when the whole anterior chamber, as well as the iris, are also sympathetically affected. I employed it once myself with advantage in a staphyloma, which was the result of an ophthalmia neonatorum; and by the long continued use of the calomel, the projection of the cornea disappeared, and the little child could afterwards close the eyelids with ease. In one case the cornea resumed its transparency, and the power of vision was restored.

“Dupuytren, after a continued use of the belladonna internally, for the space of ten years, is perfectly convinced of its efficacy in long-standing cases of scrofulous ophthalmia, and in the inflammatory symptoms occurring after depression of the cataract, which he generally takes to be those of *retinitis*. He gives either the *pulvis belladonnæ* in the dose of 3 to 12 grains and upwards, or the extract of bell. from 1 to 3 grains, in six pills, of which two are to be taken every hour. Blood-letting, leeches, emetics, and strong derivantia, as epispastics, and blisters; frictions with tartar emetic ointment, and setons, are the other medicines which are at present used in the treatment of obstinate ophthalmia, amaurosis, and incipient cataracts, by the French surgeons. To the nature and origin of encysted tumours, (*kyste sereux*,) in the lamellæ of the cornea, which have neither been described nor observed in Germany, Dupuytren has lately directed his attention. This surgeon observed in a child a serous encysted tumour, which developed itself between the lamellæ of the cornea, and which he at first view conceived to be an opacity of this coat. This remarkable pathological ap-

pearance was the consequence of a blow from a stone, which had struck the eye of the child six weeks before. Dupuytren introduced a cataract needle into the small cyst, and moved the instrument up and down in it, in order to irritate its inner surface. The fluid in the tumour was thus evacuated; but in fourteen days afterwards it formed again. The operation was again repeated, and adhesion to the sides of the sac took place; but opacity of the cornea remained behind. The mode employed for the removal of staphyloma, in France, is either Scarpa's, or a modification of Scarpa's operation. Pterygia are also removed there by scissors, bent in a line parallel with their handles. An artificial eye is frequently worn after the removal of staphyloma, although some recommend it only to be employed after the extirpation of the bulb. We cannot let the present opportunity go by without speaking of the employment of senega in different diseases of the eye, the excellent effects of which Dr. Schmalz, of Pirna, in the course of ten years, had an opportunity of observing. Senega appears to be the vegetable calomel. Wendt, in Erlangen, has already spoken of its employment and use in the treatment of hypopion. Within the space of twenty-six years, this physician had an opportunity of observing the good effect of this plant in suppuration of the eye no less than thirty times.

“*Fistula lacrymalis*.—Notwithstanding the numerous and not unfrequently subtile treatises on the diseases of the lacrymal sac and nasal duct, for which Germany is indebted to the talents and researches of Schmidt, Himley, &c. still the treatment of this disease, vulgarly called fistula lacrymalis, remains one of the most unpleasant and tedious parts of surgical practice. In France there exists very little precision as to the nature of the complaint; still Dupuytren is, on the whole, successful in the treatment of it. Roux, Dubois, and the late Bécларd, with several others, employ needles, or pieces of lead, or pieces of catgut, for the dilation of the narrowed canal, or they modify Desault's mode of operating, according to Scarpa's directions. Dupuytren's mode of operating, the bringing of a gold or silver canula into the nasal canal by an incision in the lacrymal canal, which has been known to German surgeons for a long time past, I saw frequently performed by Dupuytren himself. The merit of this mode of operating is due to Joubert; and Dupuytren can

only be called the reviver of it. After the puncture of the lacrymal sac has been effected, in the performance of which he pays no attention to the tendon of the orbicularis, but only to the nasal process of the superior maxillary bone, he directs the patient, in order to see whether the nasal canal be free, to hold the nose, and make a strong inspiration and expiration; if in the act of expiration, air comes out of the wound, then the object of the operation is generally accomplished. By the strong inspiration or expiration which one is compelled to make the patient perform, it sometimes happens that a quantity of air escapes into the cellular membrane of the inferior eyelid, and the neighbouring parts, so that emphysema occurs, producing a distressing tumour of considerable size. I saw this accident occur in two cases which Dupuytren operated on. The swelling was dispersed by the application of cold, in the space of twenty-four hours, but the cicatrization of the wound was retarded. If there should be a fistula, the edges of which are callous, Dupuytren always touches them with the nitrate of silver on the introduction of the canula. We will give the opinion of two of Dupuytren's scholars, (*in the last edition of Sabatier's Surgery*, p. 257. Vol. II.) on the result of this operation. 'Dupuytren's plan is one of the simplest and most practicable that can be devised. If the canula is once brought into the nasal canal, and if it remains there firm, then every after-cure is quite unnecessary; the cicatrization of the external wound takes place in four and twenty hours, when the puncture of the sac has been made with the bistoury; if a fistulous opening previously existed, the cicatrization takes place somewhat later. A great number of the patients operated on scarcely know whether they have a foreign body in the lacrymal passage or not, so slight is the inconvenience produced by it. They all exhibit signs of astonishment when the operation is completed, that so little time has been required to perform it. Several patients, of all ages, and both sexes have been operated on by Dupuytren in this way with the best success. The results of this mode of operating are as follows:—From twenty patients at least sixteen were radically cured, without the slightest displacement of the canula. In the remaining four cases, from various causes, it was necessary to remove the canula. If, after the puncture of the lacrymal sac has been made, the *os unguis* is found laid bare and in a cari-

ous state, one ought to wait for the exfoliation of the bone, and keep the wound open by means of charpie brought into it, and after this lay in the canula. If the canal is stopped up, the surgeon must endeavour to remove the obstacle to the side; or if the canal be quite obliterated, or no traces of it existing, as Dupuytren has several times found to be the case, then he makes the perforation of the lacrymal bone, recommended by Wolhouse, Petit, Hunter, Scarpa, and others, and then lays in a peculiarly formed canula, the ends of which are somewhat larger than its centre. The operation of Dupuytren appears to me so well adapted for the cure of the disease, that I am really surprised that it has not met with a more general trial. The canula can effect no cure where there is a polypous state of the mucous membrane of the canal, or where the inferior concha is the cause of the blenorrhœa of the lacrymal sac; in this last case, the drawing through the canal of a silk thread, as recommended by Dr. Schmalz, of Pirna, will be found peculiarly useful. And, lastly, the application of Dupuytren's canula is always contra-indicated, when, on account of a great narrowing of the canal, great force is required.

“*Extirpatio Oculi.*—The extirpation of the eye, which is indicated by the presence of carcinoma or fungus hæmatodes of the organ, is generally performed merely with a simple bistoury; even the division of the optic nerve is also done with the knife. The complaint of the ill success of this operation is in every surgeon's mouth; the disease for which it is performed generally comes again, (fungus or cancer,) and destroys the patient.”

History of the recent advances of Surgery.—Professor Riche-rand has just published an interesting volume under the above title, of which we hope to give a full analysis in our next number. The following sentence from his introduction, may serve to show his ideas of the spirit of the age, as well as his conception of the manner in which a work like his own should be composed.

“The most harmonious arrangement of words and the artifices of language, daily lose their value and influence, in an age entirely devoted to the *positive* and *useful*; and notwithstanding the struggles of hosts of sophists to re-establish creeds and doctrines in which they are too visibly interested,

the time draws nigh in which the human understanding will not longer submit to any other guides than sound sense, united to actively exercised reason." p. xiii.

Dr. MACKINTOSH'S *Case of Calculus extracted from the Female Bladder*.—Mrs. Watson, aged 58, states, that she has been afflicted with the ordinary symptoms of stone for fourteen years, which have lately become very severe. After having been under the care of several medical men, who did not suspect the presence of a calculus, she applied at my Dispensary for relief, and was attended by one of my most zealous and intelligent pupils, Mr. Giffney. In a few days he suspected the existence of a calculus, which was confirmed by the sound; and the patient was extremely anxious to have the operation performed as soon as possible. The tent used was that prepared with wax. The first was introduced by myself, and produced very great pain; it fell out in eight hours, and was found unchanged.

Mr. Giffney introduced another next day, which was also discharged without any increase of size—of course without producing any dilatation. In this way the three first days were lost, during which she suffered very considerable pain and irritation, to relieve which large opiates were used—and she lost the use of the left leg. The external parts of generation became much swelled and painful.

On the third day, Mr. Giffney made the sponge-tents with tallow instead of wax, doubling their size each time they were changed. The dilatation went on so well, that on the fifth day Mr. Giffney reported to her, that he could with ease introduce the fore-finger into the bladder. But as we knew that the stone was a large one, the tents were continued till the eighth day, when it was determined to attempt the extraction.

On making an examination, the urethra was found to be so much dilated, that the index finger was easily introduced into the bladder, and the stone felt. I found there was no necessity for employing a metallic dilator, which had been provided. The forceps were then introduced, and the stone after some little difficulty laid hold of, but as it was by the long axis, the instrument slipped. The second attempt was more successful, and the stone extracted with more ease and less pain than could have

been anticipated. Mr. Syme, Dr. Duffin, and Dr. T. Spens, junior, were present, together with several of my pupils. The patient passed a good night, and next day the sphincter of the bladder had recovered so well, that she was enabled to retain her urine for several hours without inconvenience, and has only twice passed it involuntarily since. On the first of June, twenty days after the operation, she describes her state of health as perfectly re-established, has no pain in the region of the bladder, can retain her urine and pass it at pleasure; and regrets the fourteen years previous suffering, the quantity of medicines she had taken without relief during that period, and the amount of the bills she had paid for medical advice, to regular as well as irregular practitioners.—*Edinburgh Med. and Surg. Journal, July.*

Case of Adhesion of a divided portion of a Finger, after it had been for some time altogether separated from its connexions. By J. HOULTON, F. L. S. Member of the Royal College of Surgeons.—The following case lays no claim to notice from either novelty or importance. It affords, however, another instance, to the many already recorded, of the restorative powers of nature, —powers whose limits have not yet been ascertained.

On January 30th, Mrs. B. called upon me with her son, requesting that I would dress his thumb, which had been severely wounded with a penknife. On examination, I found a piece was severed from the end of the thumb, with a portion of the nail; and as it was left at home, I begged the lady would go back and try to find it, which she succeeded in doing. I immediately adapted it to the place from which it had been removed, and confined it *in situ*, by means of strips of lint, embued with tinct. benz. comp. there being too much hæmorrhage to allow of the adhesive plaster being neatly applied—a complete union by the first intention took place: the portion of the thumb was separated for at least ten minutes.—*Lond. Med. Rep. March, 1826.*

Lateral operation fatal from Hæmorrhage.—A countryman, aged about sixty, stout, and very fat, was admitted into hospital, labouring under symptoms of stone in the bladder. On sounding, the suspicions excited by these symptoms were confirmed, and the *Lateral Operation* was therefore determined on

for his relief, and was performed, we are told, in the following manner.

The fore-finger of the left hand being introduced into the rectum, an incision was made in the perinæum in the usual manner. This incision commenced about an inch above the *anus*, near the *raphé*, and was carried obliquely past the termination of the gut. On penetrating through the fat, which was here very thick, the *staff* was felt in its place, and cut upon; and the knife was then carried forward through the membranous part of the urethra and the prostate gland.

Whilst the knife was passing through these parts, there was a gush of *blood*, and when it had fairly entered the bladder, there was as usual a gush of urine; on the cessation of which latter, the wound in that viscus was enlarged a little, with a common curved bistoury, and two very small stones were then extracted easily with the common forceps.

During all this time, however, and as it would appear for some time after the operation was finished, the blood continued to flow *profusely* from the bottom of the wound; and this notwithstanding the exposure of the lower part of his body to the air, and the application of wet towels to his thighs and perinæum.*

At length the bleeding ceased, and alarm for a time was at an end; but about four o'clock the patient became extremely restless, and began to complain of severe pains in the chest and abdomen.† Being at the same time cold and the pulse low, cordials were now exhibited; but the distress and sufferings of the unhappy patient rapidly increased, and continued with little intermission until about half past eleven o'clock, when death terminated the scene.

* The great depth of the wound, at the bottom of which the bleeding vessel lay, is assigned as the reason why no attempt was made to apply a ligature in this case. On examination after death the distance from the surface to the mouth of the wounded vessel, was found to be, as we are informed, four inches and a half.

† It is not easy, as Mr. Shaw justly observes, to explain the origin of these violent pains in the chest and abdomen, which sometimes follow the loss of blood. But as to the fact itself, it is too well established to admit of any doubt; nor is there any reason to believe it to be in any manner connected with proceedings of an inflammatory nature.

Examination of the body.—On the following day the arteries of the pelvis were injected with wax, and the parts then carefully examined,* when it was found, that the fatal hæmorrhage had proceeded from a branch of the internal iliac artery, (the proper artery of the *penis* in this case,) which arose in an unusual manner, and passed along the *prostate gland* into the body of the *penis*.

The trunk of the *pudic* artery, and the artery of the *bulb* of the urethra, were found uninjured; and no morbid appearances seem to have been observed in the viscera, at least none are spoken of.

Observations.—A distribution of the branches of the internal iliac artery, similar to that which occurred in this case, is more frequent perhaps than the anatomists of the present day seem to think; and is expressly mentioned by many of the older anatomical writers as a thing often met with by them. The publication of this case, therefore, cannot fail of being useful, in directing the attention of practical men to the subject; and in teaching the speculative that the *lateral operation* for the stone may be fatal from hæmorrhage, even when performed in the most skilful manner, and by the most experienced hand.

With respect to the present case, however, we must observe, that Mr. Shaw does not seem to think that the death of the patient was occasioned by loss of blood: for he calls the case simply one of “*Lithotomy, attended with hæmorrhage;*” and says expressly that the man, speaking of him a few hours only before death, did not seem to have been *weakened* by the loss of blood he had sustained.

We cannot conclude without adverting to the singular carelessness with which the original article appears to have been drawn up, as must be evident to every one, from the numerous omissions pointed out by us in the notes to this article, and yet we have not noticed all which occurred to us.—*Lond. Med. Journ. Jan. 1826.*

Extirpation of the Eye.—A fungous tumour having developed

* To ensure the filling of every branch, injecting pipes were placed in both common iliacs, and in the inferior mesenteric artery; it being well known to practical anatomists, that attempts to inject the arteries of the pelvis by a single pipe, frequently fail.

itself in the right orbit of a girl, seven years of age, who had never shown any previous signs of disease, increased regularly, but without pain, headache, or vomiting, until the eye was pushed out of its natural situation. On the ninth week of the disease, the eye, as well as the fungus, was removed. One month after the operation, a fungous excrescence formed in the orbit, which bled a good deal: after it was removed, it was discovered to be a portion of the cortical substance of the brain. On the succeeding days, violent inflammation of the encephalon, with delirium and obstinate vomiting, came on. A few days afterwards a fresh excrescence appeared, and increased to such a size as to touch the lips. The same appearances next took place in the left eye, and paralysis of the upper extremities occurred, followed by coma and death.

On opening the body, an extravasation was found between the membranes of the brain, the substance of which was softened. The fungus in the orbit was flaccid and fetid: the root of this vegetation was of a cancerous nature, and adhered to several bony surfaces; for example, to the pterygoid process of the sphenoid bone, and to the sella turcica, extending principally in the direction of the ramifications of the fifth pair of nerves.—*Mag. für die gesammte Heilkunde.*

Artificial Anus.—Dr. Martland of Blackburn, has lately stated an interesting case of the melancholy alternative between death and a loathsome substitute for a natural passage.

A man, 44 years of age, became affected with difficulty in voiding his fæces, which at last amounted to a complete obstruction. Bougies could not be passed upwards, and purgatives of the most drastic kind had no other effect than that of rendering the distention of the abdomen greater and more distressing. Under these circumstances, nothing remained but an operation to save life.

In the presence of Messrs. Barlow, Bailly, and Cort, Dr. Martland made an incision in the left iliac region, from near the anterior superior spinous process of the ilium, downwards and inwards for the space of about four inches. The muscles were then cut through to the same extent, and the peritoneum laid bare. This was cautiously opened by a bistoury, when the colon presented itself, known by its longitudinal bands. An

opening of an inch and a half was made into this gut, having first secured it by two sutures, to the two extremities of the wound. A large quantity of liquid fæces and air immediately escaped. Two other ligatures were now inserted, in order to keep the opening in the gut in correspondence with that in the integuments. An attempt was made to pass an œsophagus tube from the wound down to the anus, but in vain. An artificial anus was thus established near the groin, which still continues, after a lapse of many months, and there is no prospect of the original passage being opened. After various contrivances, the patient has ascertained that many folds of cotton, over which is a kind of pessary, and then a bandage, is the best apparatus for restraining the fæcal matters till he has an opportunity of discharging them by the artificial outlet.

Life is sweet, and Nature strongly abhors the King of Terrors—therefore, the exertions of the surgeon in thus prolonging existence, even with such a terrible sacrifice, are praiseworthy. —*Med. Chir. Rev. Jan. 1826.*

Cicatrization of large surfaces.—Mr. Bush, of Frome, has published some cases in a respected cotemporary, showing the efficacy of a certain mode of treatment in healing large broken surfaces. This treatment consists in touching the edges of the sore daily, with the liquor plumbi acetatis, and then sprinkling the surface with flower, so as to form a scab. Some portions of the scab were daily broken down, so as to permit the discharge of matter. In this way the cure was more quickly accomplished than by the usual surgical dressings with unctuous substances. —*Lond. Med. Journ.*

Forced injections for retention of Urine.—It will appear curious, if not incongruous, that, when a bladder is distended with urine, and cannot disgorge itself in consequence of a stricture in the urethra, the patient may be relieved by *forcing* some more fluid into the bladder. It is to be remembered, however, that the cause of the retention, in such cases, is not the fulness of the bladder, but the obstruction in the passage. This obstruction being overcome by a stream forced inwards, the bladder may then be able to relieve itself. Such, at least, are the assertions of a French surgeon, M. Amusat, (before the Academy of

Surgery in the French metropolis,) who appeals to facts in support of his assertions. M. Amusat passes a flexible tube as far as the obstruction, and then by means of an elastic gum bottle, gently forces a small quantity of fluid through the stricture. The consequence is, (and a number of trials have been made,) that the urine flows out again, and the retention is relieved. The experiment involves no danger, and certainly may be fairly had recourse to, previously to the operation of puncturing the bladder, or using much force for the introduction of a bougie.—*Med. Chir. Rev. Jan. 1826.*

Leeches.—In our last number we communicated the means by which the Neapolitans induce leeches to fix on any particular spot—namely, by touching the part with the point of a quill recently taken from a pigeon's wing. We have tried the experiment, in several instances, since our last, and always found it succeed. We have now to notice another mode of whetting the appetites of these little animals—which is neither more nor less than by putting them into some porter for a few minutes, when they will be found to bite very greedily. By an additional dip in this favourite beverage, they will be induced to renew their labours, after disgorging the contents of their first cargo.—*Ibid.*

THEORY AND PRACTICE OF MEDICINE AND MATERIA MEDICA.

Dr. BALBER *on the Treatment of Hydrophobia*. *—The following paper, we think, merits attention in the present state of our knowledge on this dreadful complaint: the first step towards improvement being always most surely laid on a knowledge of our ignorance.

“On the perusal of the mode of treatment adopted by Wendt in Breslau, for the prevention of hydrophobia after the bite of a mad dog, I was particularly struck with the similarity of the treatment adopted in Breslau and Zurich, and a singular coincidence of their results. They have been both tried during a long series of years, and are now made known, for the first time after their efficacy has been ascertained in hundreds of cases. If a priority of age has any thing to do with them, the Zurich

* Hecker's *Annalen der gesammten Heilkunde*

treatment is undoubtedly entitled to it, since it was introduced in the year 1783, whilst that in Breslau has been adopted only since 1797. Who is the real suggester of this treatment, is not now with certainty known; most probably it was Dr. C. J. Hirzel, sen. the archiater and physician of the Zurich hospital at that time. The treatment is as follows:—Deep scarifications of the wound, besmearing it with the pulvis lyttæ, application of a blister in the neighbourhood of the part, keeping up of supuration, both in the blistered and wounded part, during six weeks, and the rubbing in of mercurial ointment till symptoms of approaching salivation come on. Internally, the adults take, for three weeks in succession, every morning, and after that period, for some time longer, every other morning, fasting, a powder, composed of five grains of powdered belladonna; for which, when no trace of salivation shows itself, or if the patients come under treatment only a few days after the receipt of the wound, calomel should be substituted, or be given from the very commencement. The object of giving these moderately large doses of belladonna is, that the patient should from each dose have the symptoms of incipient intoxication, at least dryness of the throat, glimmering or haziness before the eyes, vertigo, and afterwards perspiration. Then a diaphoretic mixture of liquor ammoniæ acetatis and succinat. with copious potions of tea, is ordered for the patient, and a diaphoretic regimen recommended. He must remain in bed the four first weeks after the accident, and receive no animal food. “I lay,” (says Dr. Rahn, one of the physicians to the hospital,) “a great deal, and indeed by far the greatest stress on the external treatment; but still I think that we could not safely rely on the external alone; but internal means must be given at the same time, and regularly continued, as we do not know how rapidly a part of the poison brought into the wound may be absorbed; and which can only be destroyed by the action of internal remedies.” If the clothes are also bitten through, they are always burnt.

“According to this mode, there have been treated, in the 42 years since it has been in use, (from 1783 to 1824 inclusive,) 233 persons who have been bitten, viz. 182 from dogs, 50 from cats and foxes, and 1 by a *martin*, (*mustela*.) In the ten years from 1783 to 1792, there were treated 13 persons who were bitten by dogs supposed to be mad, and 18 by dogs of whose mad-

ness there was not the least doubt, (it is certainly not stated by what means the madness of the dogs was proved,) by a cat supposed to be mad, 1, and by mad cats, 5; making in the whole 47. From 1793 to 1802, by dogs suspected to be mad, 14, by dogs absolutely mad, 20, (all these in the years 1793, 1794, 1796, and 1797,) by a cat suspected to be mad, 1, and 6 by cats in a state of real madness, making altogether 31. From 1803, no particular mention was made in the books between dogs which were only suspected to be mad, and those which were really in a state of madness. From 1803 to 1812, bitten by different beasts, there were admitted 67; and from 1813 to 1824, (inclusive,) there were admitted 78 bitten persons; and from these, 36 were bitten in the years 1820 and 1823 by mad dogs. From these 233 bitten persons, many were admitted on the second, third, fifth, sixth, seventh, tenth, and fourteenth day, and even five and eight weeks after the wound had been received. From the whole, 4 only died, 2 in 1784 and 1791, on the second day after their admission, and consequently scarcely submitted to the influence of the treatment. Of the other 2, one a woman, was bitten on the inner and outer side of the mouth, and the other a child, on the eyelid, so that the prescribed means could not be employed with the requisite and usual exactness.

“So much for the treatment, and the results with which it has been attended. We see, however, three important remedies recommended, in conjunction with each other, for the prevention of hydrophobia. The question is whether it is necessary that these three medicines should be joined together; or can any one of them be employed singly with safety? Before I proceed to answer these questions, I beg to be allowed briefly to state some other modes of treatment, very similar to that employed at Zurich, and then to compare their results, in order that I may found my answers upon them. The mode of treatment recommended by Wendt, (vide Rev.) in his work is as follows:—filling of the wound with *pulvis lyttæ*, and the keeping up of a copious discharge for six weeks, besides this, rubbing in of mercurial ointment, and the giving of calomel internally for six weeks, so that a severe salivation be kept up. Of 106 which were bitten by mad dogs between 1810 and 1823, two only died. There were 78 persons besides these treated; but the animals were proved not to be mad, and consequently the treatment was

modified. In the *Beobachtungen und Abhandl. aus die Heilkunde*, (Bd. I.) conducted by some Austrian physicians, the senior surgeon of the large hospital at Vienna, T. M. Axter, has published an account of the treatment pursued by him in cases of bites from animals during the last 27 years; and during the whole period of that time, not a single old patient was ever brought back to the hospital with hydrophobia. During three or six days in succession, he gives internally a grain of *pulvis lyttæ*, with six grains of *canc. ocul.* and sugar; externally, over the wound, a blister was applied, and then it was dressed with the *pulvis lyttæ*, or washed with some stimulating lotion during the space of six weeks. I regret that I have only been able to see a short extract of Dr. Axter's account in the *Salzburger Zeitung*, (1820, B. I. p. 23,) where more minute particulars are not to be found. Dr. Hausbrand, district physician at Braunsberg, has given in Hufeland's Journal, for 1821, (part II. p. 21,) the following treatment:—first active blood-letting, (this is only to be pursued, however, when the patient applies soon after the accident,) deep scarifications of the wound, promotion of the bleeding, washing of the wound with salt and water, and the application of an ointment composed of unguentum basilicum and powdered cantharides, or a large blister over the wound, and keeping up of the suppuration during the space of three months at least. Internally, the patients were to take, for three evenings, a powder composed of camphor and opium, drink elder tea, and keep up a copious perspiration. There are only eleven cases given by Dr. H. of persons who were bitten by dogs absolutely mad, and treated in this manner by him; but they all recovered.

“On looking at these four different prophylactic modes of treatment, we perceive that, as to the external treatment, it is essentially the same, but that the internal differs in each; but, still, they have been all attended with the same fortunate results. In Breslau, the patients were kept in a state of salivation for six weeks; of more than 100 patients, only two died; and the wounds of these persons were so situated, that the local means could not be applied with the same effect as in the other cases. In Zurich, the patients are never brought into a state of complete salivation; the belladonna is continued six weeks without intermission, and the patient is kept in a state of perspiration.

Of more than 100 patients, (I will allow that only half of the 233 were bitten by mad animals,) only two died; and the wounds of these persons were in such a situation, that they could not be properly treated. Dr. Hausbrand gives neither quicksilver nor belladonna, but certainly keeps up perspiration, during the three or four first days, by opium and camphor; and has, hitherto, not lost a case. Mr. Axter gives nothing to his patients with the exception of a grain of cantharides, during a few days after their reception into the house; and he has also been equally successful in his treatment. From these facts the following conclusions may be drawn:—1. Neither quicksilver, nor belladonna, nor diaphoretics, are of themselves able to prevent the occurrence of hydrophobia. 2. If one be not warranted in saying the same of cantharides, still its internal use may be dispensed with. 3. The local treatment is the only sure and certain preventive against the recurrence of the complaint. If, after these four different modes have now been generally made known, we should still hear of persons dying after the bite of mad dogs, it will certainly be a matter of astonishment; and the fault will either be in the patient's not applying for relief in proper time, or in the physician for being ignorant of these valuable but simple modes, and trying other plans of treatment less sanctioned by the list of experience."—*Anderson's Quarterly Journal*, Jan. 1826.

Iodine successfully employed for the removal of induration of the testicle, by EUSEBE DESELLE, M. D. Paris.—This was a case pronounced to be *sarcocele* by various physicians. The testicle was knotty, hard, very heavy when handled, and with the scrotum covering it, nearly as large as the closed fist. The other testicle was wasted to the size of an olive. Extirpation had been proposed. Treatment commenced on the 4th of July; leeches over the spermatic cord, followed by emollient poultices; diet; cooling drinks; repose. After the leech bites healed, a quantity of the ointment of hydriodate of potass, the size of a hazel nut rubbed on the part night and morning, caused erysipelatous redness and great irritation, which soon required the treatment to be for a time suspended. Afterwards resumed, and prevented from becoming too violent by use of tepid bath. He was then directed to use the following prescription:—

R. Extr. Gentian. ʒij.

Hydriod. Potassæ et Assafoetidæ, aa i. gr.

Syr. Croci, q. s. f. pil. lx.

Two of these pills were taken morning and evening, and together with the frictions were continued to the end of August. The disease was removed; the testicle regained very nearly its natural size; the wasted one increased to nearly what it had been originally, and the function of the glands was perfectly restored, and without any return of disease.—*Journ. Universel*, Dec. 1825.

On the good effects of Sal. Ammoniac in large doses, in a case of dangerous obstruction of the Esophagus, arising from disorganization. By Dr. ANTON. FRIEDRICK FISHER, of Dresden.—Dr. Fisher states, that ever since he was so fortunate as to discover the happy effects of the muriate of ammonia, administered in large doses, in cases of diseased prostate and urinary bladder, he has directed much attention to the effects of that medicine upon other disorganized organs, particularly those of membranous or glandular structure. A female, who had laboured nearly twelve months under an obstruction of the esophagus, was destined to the operation of the muriate of ammonia. This was the eighth case of the kind which had come under Dr. F.'s care in the course of twenty-three years' practice. He lost all those before treated according to the rules of the art, under the most distressing circumstances, such as actual starvation and emaciation to the last degree, notwithstanding the constant administration of the much boasted injections of broth with yolks of eggs, washing the body with strong wine, and frequent baths of strong malt decoctions. The celebrated mercurial treatment both internally and externally, burnt sponge, acetated kali, conium maculatum, belladonna, resolving gum resins, extract. resolvers, genuine Carlsbad waters, and consultations of the most skilful physicians, were all unable to check the disease; to say nothing of their not being at all likely to effect a cure. It was in vain to make a trial of medicines already tried, and found ineffectual. The muriate of ammonia inspired Dr. F. with slight hopes of relieving the patient, who was sixty-four years of age, descended from healthy parents, and had enjoyed, from her youth, almost uninterrupted good health. When quite young

she taught dancing, and subsequently the learned languages. In her fifty-first year, in consequence of distress and trouble, she complained of indigestion, and shortly after of constipation, associated with obstruction of the portal system. To counteract this state of body, frequent elastic purges were used; these brought on hæmorrhoids, which relieved in a measure. She found her situation quite passable till her sixtieth year, when she had frequent attacks of gout, and was in the habit of poulticing the parts attacked with various substances, and taking diaphoretic medicines. This treatment was generally successful in relieving the symptoms of the gout. The patient complained for the first time, in the spring of 1824, of difficult deglutition, which increased so very slowly that it occasioned no alarm, she believing that it depended upon her having swallowed too precipitately at some unknown time, a mouthful of food, and that the inconvenience would disappear after a short time; but in this expectation she was disappointed, her deglutition becoming daily more difficult, until she was unable to swallow liquid nourishment without the greatest efforts. The patient referred all her sufferings to an apparent lump about an inch above the cardia, where it appeared to her the food was arrested in its course, and pressed downwards with great force. Glandular disorganization was considered to be the cause of the dysphagia, and that was supposed to have arisen from the gouty affection, which had not appeared in its usual form from the time of the first symptoms of difficult deglutition. A blister was placed upon the chest corresponding to the diseased spot, and very small pills composed of guaiac. antimonial soap, extract. aconit. and camphor, were prescribed. The blister was kept suppurating, and the pills continued some time, without any other effect than increasing the saline deposit of the urine, and occasioning a considerable diaphoresis. The symptoms of the disease were becoming more urgent, and recourse was now had to the muriate of ammonia, which it was reasonably hoped would, in its passage, act as a caustic upon the part, and afterwards invigorate the system, as well as produce its ascertained solvent effects. A scruple of the muriate of ammonia, with an equal quantity of the extract of liquorice, and as much of the extract of dandelion as was necessary to make a mass was ordered to be taken every two hours. The patient was directed to form the mass into as many small

pills as she wished. In five weeks from the commencement of this treatment the deglutition was easier, and the sensation of bearing down in the esophagus after swallowing was sensibly diminished, and large quantities of mucus, sometimes mixed with the medicine, were thrown up, but towards the latter part of the treatment the medicine never came off with the mucus. After a continuation of the medicine eleven weeks, the patient was able to swallow bread and meat; but, as there was still some little remaining difficulty in the passage, she was directed to continue the prescription some time longer. It is remarkable, that as soon as the obstruction in the esophagus was removed, the attacks of gout reappeared as before—*Hufeland's Journal*, June, 1825.

Chronic Rheumatism cured by a hot bath of seven and a half hours continuance. By Dr. TEAILLIER.—A lady, of twenty-four years of age, had laboured under rheumatism six months. The disease affected her extremities, the articulations of which were much swollen, and rendered motion difficult. The repeated application of leeches, poultices, and of camphor and opium to the painful parts, as well as the frequent use of the warm bath, only procured temporary relief, without diminishing the disease in the slightest degree. The appetite was good, and the functions of the organs generally were healthy. An empiric, to whom she applied, advised her to remain in a hot bath, to be gradually raised nearly to the boiling point, for twelve hours, and assured her a complete cure by that alone. The patient ordered a bathing-tub, with a furnace attached to it, to her chamber, and directed her servant, (a child,) to keep up the fire during the whole time she was to remain in the bath. At twelve o'clock the patient went into the water, and remained till six P. M. when she lost her recollection; the servant now became alarmed, and ran to a neighbour to announce the death of her mistress, who was taken from the almost boiling water at half past seven o'clock, and Dr. T. sent for, who found the patient in the following state: face much swollen and blackish, the swollen eyelids covering but partially the everted eyeballs, the whole skin dark red and much swollen, mental functions completely at a stand, foaming at the mouth, low delirium, gritting of the teeth, convulsive motions of the whole muscular system, which increased by the slightest touch, so very sensible was the skin; breathing

difficult, abdomen much enlarged, pulse hard, contracted, and one hundred per minute. Four and twenty ounces of purple blood were drawn from a large orifice, and immediately after the patient spoke, and was no longer troubled with the convulsive contractions of the muscles, but complained of great pain at the epigastrium and excessive thirst; to allay these symptoms a poultice and orgeat were prescribed. The night was restless, but without delirium and convulsions; the head was free of pain, but the uneasiness of the epigastrium was increased: the application of forty leeches to the epigastrium relieved this last symptom till the third day, when it appeared with greater violence than before about the umbilicus, and again yielded to the re-application of leeches, twenty in number; the cataplasms were regularly continued, and an enema was administered night and morning. The symptoms gave way gradually, particularly the extraordinary sensibility and inflammation of the skin, which appear to have acted so powerfully upon the brain and the mucous membranes of the intestinal canal. Six weeks after the restoration of the patient, the whole of the epidermis scaled off; and since the bath, (January, 1824,) she has never been afflicted with the rheumatism.—*Hufeland's Journal*, July, 1825.

Colica Pictonum cured by means of Vinegar.—Captain A——, a delittante in painting, had the habit of putting his painting pencil in his mouth, after using it in different colours, which contained more or less lead. In the beginning of December, 1823, he experienced slight colics, with dryness of mouth, and constipation: all these symptoms increased, notwithstanding remedies had been used, till the twenty-second of December, when he was most violently attacked with great anxiety, thirst, hiccough, nausea, and constipation. Dr. Vergari prescribed, during three days, oleaginous, saline, and drastic purgatives, enemata, baths, and diluent drinks, without making the least impression upon the disease. He now determined to try a mixture of two ounces of vinegar and two pounds of water: this was no sooner administered than it operated like a charm; the pains ceased immediately, the patient fell into a sweet sleep, and had several alvine evacuations as soon as he awoke. The vinegar drink was repeated two or three times a day till the seventh day, when the patient was perfectly free of disease.

Dr. Magleari states that during the Russian campaign, some bottles of the extract of lead were packed in the same chest with bread and sugar; one of the bottles broke, and its contents were absorbed by the sugar; of this some partook from necessity, but instead of suffering any inconvenience from it, they felt much stronger, and better enabled to bear the fatigues and hardships of that unfortunate campaign. This observation seems to prove the utility of sugar as an antidote for poisoning from lead, and that it may be used with considerable advantage as a corrector of the preparations of lead, administered in various diseases.—*Ibid*.

Efficacy of the bark of the root of the Pomegranate tree in cases of Tænia. By Dr. HENRY WOLFF, of Bonn.—In the month of June, 1823, a delicate female, twenty years of age, applied to Dr. W. for relief. She complained almost every morning of pain and vomiting, frequently of colic, difficult micturition, and straining at stool; sometimes she felt considerable muscular strength, and at other times great debility. The repeated evacuation of pieces of *tænia* proved the nature of the disease distinctly; but the spirits of turpentine, *oleum chaberti*, tin filings, and other general vermifuges, were used without effect, except the expulsion of detached pieces. In order to try the effects of the pomegranate bark, application was made to an apothecary, who procured the bark of a tree about twenty years old, which had not as yet blossomed; of this bark an ounce was boiled in one and a half pound of water, reduced to twelve ounces, of which the patient took two ounces every half hour. After two doses had been taken, fasting, she felt nauseated, and vomited; and, after an interval of an hour, she drank a cup of coffee, and continued the medicine, which now remained on the stomach, till the sixth dose: an hour and a half after alvine evacuations followed, and to the surprise of all, the worm came away living; after which, there were six more evacuations, each bringing away living portions of the worm. The next day the patient felt so well, that she visited Dr. W., a distance of two miles. The head of the worm was distinctly ascertained to have been evacuated.

Two similar cases, treated in the same manner, and with the same symptoms and fortunate termination, are related minutely by Dr. W. In seven other cases, the decoction appears not to

have cured the disease, though it caused the discharge of detached portions of the worms; but in two of these cases, the symptoms of *tænia* ceased altogether. Dr. W. thinks that this new vermifuge is particularly useful, when detached portions of the worm are spontaneously evacuated. It appears that such evacuation depends upon a species of development of the *tænia*, when it possesses greater sensibility, and of course is more liable to be acted upon by the medicine. The promegranate bark appears to be more effectual when it produces vomiting and purging, than when the latter evacuation alone takes place. It is also to be remarked, that the same bark was used in the three first, and certainly cured cases; whereas, a less active bark, from smaller trees, was used in the four last cases, which appear not to have been relieved.—*Hufeland's Journal*, Aug. 1825.

Tic Doloureux.—Our experience is gradually enlarging on this subject.

Case 1st.—A clergyman, aged about forty, of a thin habit of body, and free from organic disease, was seized, on exposure to the external air, when heated and fatigued by the exertion of preaching in a close and crowded chapel, with a very violent pain affecting the second branch of the fifth, and portio dura of the seventh pair of nerves.

At first the complaint was treated as a rheumatic affection: but the symptoms becoming more distinctly marked, it was pronounced to be *tic doloureux*; and various remedies, both internal and external, were in vain employed for its relief.

At length, the *arsenical solution* was had recourse to, and was continued for six or seven weeks with much benefit; when it disagreed with the bowels, and was in consequence given up. In its place, however, full doses of the *sulphate of zinc* were substituted, which in a few weeks more completely conquered the disorder.

Case 2d.—A widow lady, aged about forty-five, became affected, towards the autumn of 1815, with violent pain in the left side of the face; a pain which came on in short and frequent paroxysms; which was increased on pressure being applied to the infra-orbital nerve; and which, on such occasions, spread over the forehead to the back part of the head.

In the relief of this pain, the bark and opium were first exhibited; then sulphate of zinc and copper; then arsenic, conium, hyoscyamus, belladonna, and aconitum; but all in vain.

It was then proposed to divide the nerve, and a day was fixed for the operation; when on the morning before it was to have taken place, the patient passed by stool a piece of a *tape-worm*, about seven inches long. This led to a suspicion that the existence of the pain in the face was connected with the presence of one or more of these animals in the intestinal canal. The oleum terebinthinæ was in consequence exhibited, in doses of two drachms three times a day, with occasional purgatives; under which treatment two more pieces, and three small perfect *teniæ*, were in the course of a few days expelled;* and the pains, at the same time, completely and permanently removed.

Case 3d.—A married woman, aged sixty-three, had for several years been afflicted with severe and acute attacks of rheumatism on both sides of the face, and especially on the left. When first seen by the reporter in October, 1816, she complained of pain in this side of the face more darting than usual; and the part, on examination, was found so tender, as to excite, on being touched, the most piercing cries and violent contortions.

In a few days an attack of erysipelatous inflammation came on, which lasted about a week; and, at the same time, the other side of the face began to be affected. Attacks of this kind continued for some time, coming on monthly, and being always accompanied by a disagreeable discharge from the vagina. This circumstance led, (after tonics, aperients, and opium, had been tried in vain,) to an examination per vaginam, when the *os uteri* was found enlarged and indurated, and so irritable that the whole frame became convulsed during the examination of this part.

The *carbonate of iron*, in doses of five grains every four hours, was now prescribed, with an opiate at bed-time, and occasional aperients. Under this plan, which was continued, it appears, for about two months, considerable benefit was received by the patient; the paroxysms of pain having in this time become much

* One of these pieces is stated to have been about nine, and the other four and a half inches long—and the lengths of the small *teniæ* respectively are stated to have been, eighteen and a half inches, eleven inches, and six and a quarter inches.

less severe and frequent, the discharge from the vagina having ceased, and the appetite, strength, and sleep, having much improved.

Note.—The final termination of this case is not given; but nothing, perhaps, beyond a partial and temporary relief was to be expected, in a woman of sixty-three, long affected, as she appears to have been, with organic disease of the uterus.—*Lond. Med. Rep. Dec. 1825.*

Of the Chloruret of Lime as a disinfecting agent.—Mr. Deslandes has published an observation upon the use of Chloruret of lime in destroying the odour arising from putrid animal matter. In a case in which the placenta was retained and came away in shreds, producing such effluvia that the chamber could hardly be borne, this preparation completely succeeded. It was injected in the proportion of an ounce to a pint of infusion of marshmallows. The putrid odour disappeared after the second injection: and this being frequently repeated, it did not again return. *Lond. Med. Rep. Jan. 1826.*

Muriate of Gold in Syphilis. Dr. Gustavus Benaben has published some cases of the above disease cured by the muriate of gold. He precedes the relation of these cases by reminding us that these remedies are as ancient as the year 1540, and that they have been recommended at various periods down to the time of Dr. Chretien, whose preparation, viz. the muriate of gold and soda, is employed by the author. We only quote him in order to inform such of our readers as are disposed to put this remedy to the test of experience, that it is usually employed in frictions on the tongue, beginning with the fourteenth part of a grain, and gradually increasing it to the eighth; sometimes it is also administered in very minute doses internally: copious sweats, or a great flow of urine, are the effects of the medicine on the animal economy. The quantity required for the use of secondary symptoms appears to have been from six to twelve grains. *Lond. Med. and Phys. Journ. Jan. 1826.*

Non-mercurial Treatment of Syphilis.—In a late number of Gräafe's and Walther's Journal, we find an article by Dr. Otto, of Copenhagen, on Syphilis, particularly the treatment of it

without mercury, and the prevalence of this practice in England, in which Dr. O. has drawn the following conclusions.

1. That the cure of syphilis, without mercury, has been asserted by so many authorities, that the fact can no longer be doubted. If then the disease could formerly be cured without mercury, it may certainly now be much easier, as it has lost much of its violence and obstinacy.

2. Syphilis can undoubtedly be radically cured, in this manner; but then the cure is of longer duration, and the diet requires considerable restriction.

3. The secondary symptoms, and a return of the complaint, are certainly more frequent; but the symptoms are not so difficult of removal, and the treatment has a much more speedy effect.

4. As the treatment without mercury requires a longer time, it appears more practicable in hospital than in private practice; and, on the other hand, the patient can be better watched in a hospital, which, on account of the diet, is of great importance.

5. "As ulcers on the genitals are often not syphilitic, and the use of mercury is contraindicated from a predisposition to scrofula or phthisis existing in the individual, it is consolatory to learn, from the results of experience, that this medicine is not always necessary, and that a radical cure, by more simple and innocent means, can sometimes be effected. Where, however, the physician is anxious to avoid the possible evils which mercury is capable of producing, and also avoid loss of time, there remains a middle way, namely, to employ mercury—whose specific action can scarcely be denied, in moderate doses."

Tetanus.—This disease has been successfully treated in a horse, on the plan of O'Beirne, of Dublin, by injections of tobacco. It was given in the form of enemata, one ounce to the quart of boiling water. It produced stools when nothing else would: the discharges were black and fetid.

The pulp of the Andansonía Digitata in Phthisis.—This tree, which grows to the circumference of 60 to 78 feet, is a native of Africa. Its pulp, made into a linctus, has been found to be useful in phthisis.

On the Prussic Acid.—Dr. Elliotson observes, “I may, perhaps, be permitted here to state, that very extensive experience with prussic acid for four years has fully confirmed all I published respecting it in the work referred to,* and has not furnished me with any additional information, except that it is equally successful against violent and chronic hiccup as against other symptoms of disordered stomach; and that it will in some cases cause ptyalism and irritation of the mouth, as noticed by Dr. Macleod.”—*Edin. Med. and Phys. Journ.*

Case of Lithotomy performed by Mr. Clever on himself.—Mr. Clever had suffered from the stone from his infancy, and had undergone the operation five times, and was now enduring for the sixth time, the torments of this painful malady: he, therefore, determined upon immediately relieving himself; and placing himself before a looking-glass, and raising the scrotum with one hand, he plunged the point of a bistoury perpendicularly into that part where the operation is usually performed; after resting a moment, he prolonged the incision through the integuments, and put his finger into the wound, hoping to feel the stone, but he found the division he had made imperfect; he therefore again had recourse to his bistoury, and completed the section: then, with the assistance at first of one finger, and afterwards of two, he searched for and extracted a stone as big as a large nut. The urine flowed in abundance; he dressed his wound, and slept soundly. The next day, Mr. Clever informs us, he was as gay as if nothing had happened. Many medical men, and others whom he knew, astonished at the account they heard, went to see him, in order to be assured of the fact; and among the number was professor Béclard, who examined the stone. Mr. Clever recovered perfectly. The stone, when examined, appeared to owe its formation to a piece of sponge-tent, with which the wound in the former operation had been plugged.—*Anders. April, 1825.*

Case in which a New Method of Performing the Lateral Operation of Lithotomy was practised with success, by James T. Wilkinson, Member of the Royal College of Surgeons in Ireland.

* Numerous Cases illustrative of the efficacy of the Hydrocyanic or Prussic Acid in Affections of the Stomach, &c. 1820.

—Having lately performed the lateral operation of lithotomy in a manner different from the common method, I take the liberty of submitting for your consideration, the case and the circumstances which led me to deviate from the usual mode of operating. The subject, a boy of eight years of age, had been afflicted four years with the disease, and along with the usual distressing symptoms, had, at every effort to make water, a protrusion of the rectum to a considerable extent, which became much thickened and diseased. Upon the introduction of the staff into the bladder, the water came away, and with the effort the rectum protruded, and all the propelling muscles were put strongly into action. I felt the end of the staff which was in the bladder to be forcibly closed upon by its contraction, and was convinced that it would be altogether impossible to introduce any of the usual cutting instruments into the bladder without wounding its fundus. Thus circumstanced, it occurred to me that a probe-pointed bistoury might be introduced through the neck of the bladder, and the parts divided from within, outwardly, the back of the knife in the mean time removing the folds of the bladder out of danger.

The external parts having been divided in the usual way as for the lateral operation, I cut into the groove of the staff through the membranous portion of the urethra, and having reached the neck of the bladder, I exchanged my scapel for a curved bistoury with a button point, fitting the groove of the staff. It had also a sharp point, which was movable. Having passed this instrument along the groove of the staff into the bladder, I felt in the external wound for the button of the bistoury, and having fixed it in a situation which I deemed favourable, I pushed forward the movable point through the bladder upon my finger, and then withdrew the knife in a direction corresponding with the external wound; a stone about the size of a walnut, and resembling it in external appearance, was extracted, and the patient became perfectly well, without any further inconvenience.

I have a second time performed the operation in a similar manner, and with the same success: I have also performed it upon the dead subject, and afterwards dissected the parts, and found, that the parts divided are those intended to be divided by the lateral operation, and that the usual accidents are altogether avoided.—*Edinburgh Medical and Physical Journal* for January, 1825.

Upon the peculiar Principle of Narcotic Plants.—DR. BRANDES of Sabzerflen, having been prevented by extreme illness, induced by investigating the peculiar principles of narcotic plants, from completing his inquiries, has announced the result of his labours in general terms. He states, that he has found a peculiar narcotic principle extremely pure in all the narcotic plants, as belladonna, hyoscyamus, conium, stramonium, chelidonium, digitalis, &c. The narcotic principles are readily soluble in alcohol, æther, acid, and water, and of a highly offensive odour. This odour is so great in the principle of conium, that it is almost impossible for an individual of an irritable habit to remain in the room where there is an æthereal solution containing only a few grains of it. The smell of such a solution is equal to the smell arising from twenty or thirty pounds of the plants. It is also remarkable, that as this principle is neutralised by acid, the disagreeable odour disappears or is greatly diminished, which so far agrees with the circumstance, that the plants themselves give little of their peculiar smell, because the narcotic principle is not in a free state. Dr. Brandes has promised to communicate the manner of obtaining the principles. *Lond. Med. Rep. Feb. 1826.*

Remarkable Cure of Loss of Speech.—A young girl, sixteen years of age, was suddenly bereft of speech and consciousness, as she was acting the part of the angel in a procession, (des Christkinder.) “It was the commencement of a catamenial period, which had just begun; the day was stormy and wet, and she was clothed in a thin white garment. The attack took place as she was on the point of pronouncing the salutation. The populace regarded this as a judgment from Heaven. The day after the seizure, I was sent for. Leeches to the neck, as menstruation was declining, commenced the treatment: mercurial frictions with volatile liniment three times a day, and belladonna with carbonate of ammonia in increasing doses, were added. Within fourteen days the patient recovered. On the twelfth day menstruation was re-established. But the remarkable part of the case in the public mind was, that on Christmas eve, on which, 1824 years before, the real angelic host had sung their hosannas to the Virgin, which she had wickedly endeavoured to imitate, her speech returned; an event, nevertheless,

which, however wonderful at first view it might appear, is altogether explained by the re-establishment of the menstrual discharges, which happened to take place on this day."—*Hufeland's Journal for January 1825. A communication by Dr. Huize of Waldenburg.*

Ligature of the Carotids.—From observing the great relief produced by this operation, in cases of violent determination of blood to the head, some of the French practitioners seem to meditate a trial of it in cases of epilepsy which do not readily yield to medical treatment. The result must, in many instances, be so doubtful, and in some so certainly unsuccessful, that there is but little encouragement for such a practice; whilst in those cases in which the epilepsy depends upon causes likely to be controlled by tying one of the carotids,—cases, for instance, depending on simple determination of blood to the brain, without organic mischief within the cranium, we should not too soon despair of giving relief by a less heroic mode of proceeding. If considerations of this kind have no weight, we may expect to see the carotids tied in mania, in tendency to apoplexy and paralysis, and even in cases of headach. But we shall not give way to any alarm on this subject until we learn that our neighbours submit to the ligature on such occasions; for unless the patient consents, the surgeon speculates but in vain.—*London Med. Rep. Feb. 1826.*

Ointment of Tartarized Antimony.—Remarkable Effects produced by it.—The free application of the ointment of tartarized antimony to the lower extremities is frequently productive, Dr. Elliotson states, of a very remarkable effect; namely, the appearance of a crop of *pustules on the genitals*.

The application of the ointment, also, to the abdomen has sometimes, he says, been followed by a similar effect; which he never noticed when the ointment was applied to other parts, unless when the patients, from neglect, allowed it actually to come in contact with the parts.

In the cases seen by Dr. Elliotson, and he states them to have been numerous, the pustules appeared on the scrotum; but extended also to the glans and other parts of the penis, and some-

times to the perinæum, the groins, and the verge of the anus. These effects were observed even when the ointment was applied entirely below the knees; and were not confined to males, the females suffering in a similar manner on the corresponding parts. —*Med. Chir. Trans.* 1825, p. 241.

Contagion and Non-Contagion.—The contagious or non-contagious nature of the plague, and of yellow fever, is at present a fertile subject of dispute among the French medical academicians; and the non-contagionists have given the strongest proof of their sincerity, by offering to expose themselves to the danger, of which the existence is asserted by their antagonists in this never-ending controversy. Messrs. Costa, Lassis, and Lasserre, some time ago requested permission to make a personal experiment of this kind in the lazaretto at Marseilles; and offered to wear any infected cloths that might be imported: a physician at Rochelle, Mr. Casimir, begged to share the honours and the danger of the first part of this offer. Whether or not this great question will be at all cleared up by the experiment, supposing it to take place, is a matter of considerable doubt. On the one hand, supposing that three out of four of the above gentlemen should die in the trial, the fourth would, in all probability, “argue still:” and supposing all to escape, their good fortune could by no means be conclusive against the existence of contagion in certain circumstances; and this, we believe, is all that sensible people contend for at present. There are some physicians, no doubt, who deny this—and some who contend for more; and between combatants whose views is so obstinately limited to one side of the shield, we see no prospect of a termination of hostilities. *Lond. Med. Rep.* Feb. 1826.

Quina Bicolorata.—This bark, which has considerable reputation in Italy as a febrifuge, and of which a short notice was given in our number for April, has been analysed by Mr. Pelletier: the specimens were furnished by Mr. Brera. It appears not to be a true cinchona, and to contain neither quinine nor cinchonine, but a bitter principle, resembling colocyntine. An account of this latter principle will also be found in the number above mentioned, page 349.—*Rev. Méd.* Sept. 1825.

Hypochondriacal Gastro-Enteritis.—Medical students, of what is commonly called a nervous temperament, are well known to be at times much afflicted with the apprehension that they are actually suffering under diseases to which their minds have been forcibly directed. Attendance on a course of lectures becomes, in some instances, from this unlucky propensity, a source of continual but varied suffering. Separated from his home and his friends, anxious concerning his examination, careless concerning his diet, and exhausted with injudicious mental exertions, a very slight exertion of fancy suffices to confirm the juvenile hypochondriac that he has an alarming determination of blood to the head, or that his form is that of a phthisical subject. Even the vivacity of a Parisian student is not proof against the attacks of these imaginary maladies. The pupils of Corvisart, were so impressed with the diagnostic lessons of their celebrated master, that a great part of the time not spent in the lecture-room was passed by them in finding out that they had got aneurism of the heart. Nor are the more recent prelections of Mr. Broussais more harmless. Not content with treating every case of pain of stomach as a gastritis, even such as nothing but a sedative or a tonic treatment will ameliorate, his pupils waste a good deal of valuable time in accounting for their own dyspeptic symptoms, according to the dogmata of the great leader of the school of the Irritacionists; and the lecturer has the satisfaction of explaining himself to a crowd of young gentlemen, one-half of whom, at least, are inwardly groaning over the very malady, concerning the existence of which his enemies are so obstinately sceptical. Carrying with them such internal evidence of the truth of their master's doctrines, their last resource is to hope that their antagonists may happily arrive at an important conviction by similar sufferings; and those who are proof against argument daily yield to an attack of pain in the stomach.

We are informed by an eye-witness, (Mr. Barras, *Revue Médicale*, Decembre, 1825,) that 'in the present day the physicians and pupils of the New School have a continual dread of chronic gastro-enteritis: as soon as they feel a little pain in the stomach, or even a little indigestion, they examine their tongues in a glass, or protrude them at one another; and if they find, or fancy they find, a redness of the tip and edges, they declare themselves, or one another, to be attacked with inflammation of

the gastro-intestinal mucous membrane. They straightway apply leeches, have recourse to gum-water and milk, and debar themselves from necessary food. Having persevered in this course for some time, they try to go back to the use of meat and wine; but the susceptibility of the stomach having been increased by the abstraction of blood, by mucilaginous drinks, and the severe atonic regimen to which they have sentenced themselves, a more nutritious diet does not agree with them at all; for as the eye which has long been deprived of light is unable to bear the day, so the stomach which has for some time been deprived of its habitual stimulus becomes unable to support it. Being now persuaded that the gastro-enteritis is not removed, the patients return to antiphlogistics: the already too sensible gastric system is further acted upon by the imagination, and in its turn reacts upon the brain; and by this reciprocity of moral and physical influences the disease goes on increasing. Serenity of mind, and an appropriate regimen, would still relieve it; but the physiological physicians, who see nothing in the case but an inflammation of the digestive mucous membrane, go on making matters worse by debilitants.'

Mr. Barras relates some cases in proof of these assertions, including his own; and considers the gastric affection which prevails among the students to be a true hypochondrical affection, arising in nervous and irritable temperaments, from a sedentary life, too much study, unruly passions of the mind, and other causes; but above all excited by fear, and by the improper system of fasting, and of drinking copiously of diluent beverages, such as *tea*, &c. which is consequently observed by the patients when the mind has become possessed with the idea of serious organic disease existing in the stomach. The symptoms of this neuralgia of the stomach, as contrasted with those of real gastro-enteritis, are concisely stated in the following paragraphs.

'Intermitting pain of stomach, relieved by strong pressure of the epigastrium; the performance of digestion, in some cases even with facility; very rarely, vomiting; inodorous and tasteless eructations; obstinate costiveness; transient febrile movements without regular fever, and not in all examples; undiminished strength, and by no means remarkable emaciation, unless the patient is subjected to too severe a regimen or to detracton

of blood; complexion of natural appearance; occasional interruption of all the symptoms for some days, or some weeks, with much tendency to relapses; excessive moral affection in most cases; but the prognosis always favourable, and, under proper treatment, a prospect of certain cure:—such are the principal characteristics of neuralgic affections of the gastric system.’

‘Pain of the stomach, often not acute, but continual, and always exasperated by pressure in the epigastric region; digestion invariably incomplete; vomitings in the greater number of cases; acid and corrosive, or fetid and nidorous eructations; frequent diarrhoea, particularly when the mucous membrane of the intestines is implicated; slow fever; loss of strength, and rapid emaciation; complexion wholly changed; steady and uninterrupted march of symptoms; an unfavourable prognosis; and death in the majority of cases:—such are the features proper to chronic inflammation of the gastro-intestinal mucous membrane.’—*Lond. Med. Rep. March, 1826.*

Note concerning a Species of Cholera Morbus, occasioned by eating Ices during the Heat of Summer.—Towards the end of spring, and in the beginning of the summer of last year, many individuals in Paris suffered so severely after taking ices as to give rise to a suspicion of their having been poisoned; and although no deaths occurred from this cause, it was thought proper to make it a subject of judicial investigation. Several persons having experienced these inconveniences at the *Café de la Rotonde*, in the Palais Royal, including the proprietor Mr. Maseré, and his wife, a most diligent investigation was instituted into the manner of preparing the ice, the vessels employed, &c. and the waiters were subjected to a strict examination. Fortunately, however, for the character of the persons concerned, the same effects soon began to be observed in other French towns. It was found that the same symptoms had in some instances been produced by simple iced water; and it was recollected that in 1822, the summer of which year was also very warm, similar accidents had been observed. After these circumstances had become the subject of consideration, a commission was appointed, consisting of medical practitioners and chemists, (Messrs Vanquelin, Marc, Léveillé, Marjolin, Orfila, and Pelletier,) before whom were laid the depositions of those

who had been indisposed and the reports of the physicians by whom they had been attended; the latter were also subjected to a cross-examination: and after all this had been done, they pronounced it as their unanimous opinion—1. That the accidents which had been the subject of examination could not be accounted for except by ascribing them to an irritation of the alimentary canal, caused by the sudden action of cold on the stomach of persons who had been a long time exposed to the action of heat and dryness. 2. That the means of avoiding these accidents consisted in observing great moderation in the use of ices, and particularly of iced water, during the great heats, or on coming out of the theatres, or other crowded assemblies. 3. That the disorder produced by these ices ought to be treated as cholera morbus.

After this statement, the fifth chamber of the Tribunal of "*première instance*" of the department of the Seine acquitted poor Mr. Maseré of all suspicion; and decreed that the indisposition caused by the ices taken at the *Café de la Rotonde* could not be attributed to negligence, or imprudence, or malevolence.

It is to be regretted that the commission of physicians and chemists did not make any statement of the symptoms which occasioned all this parade of business. We all know the wearisome frivolity, and laborious nothingness, which characterise the minor public offices of Paris; and we dare say the fifth chamber conceived itself to be deliberating on a matter of life and death; but if the *commissioners* meant their report to be useful to the public, it should have detailed those symptoms which are so decisively spoken of as to be treated like cholera morbus.—(*Bulletin des Sciences Méd.*)

Hæmoptysis.—The great heat in the month of June, brought into the hospital several cases of hæmoptysis. On the 18th, three cases came in together, and Mr. Recamier determined to show his pupils the effects of large doses of nitre, in this complaint, as employed by the Italian physicians. To each of the patients, therefore, he gave half an ounce of nitre, dissolved in a mucilaginous mixture, to be taken in the course of the day. In one patient, who had been bringing up blood freely for four days previously, and who had taken no other medicine, the hæmoptysis was completely arrested during the first day in the hos-

pital. The day after, it returned, and was again stopped by the same medicine, and did not afterwards recur. This patient took the half ounce of nitre in the course of four hours, by which the urine was very much increased, and some disagreeable sensations were produced in the stomach and mouth, but no other effects. In the second case, bleeding had been previously, but ineffectually employed, and the hæmoptysis continued abundant. On the second day of the administration of the nitre, no trace of blood was perceptible in the expectoration. The medicine was continued for two days more, as a precautionary measure. In this patient, no inconvenience to the stomach was produced by the nitre. The third case was that of a man 45 years of age, who had been subject to severe hæmoptysis for ten years previously, the attacks recurring about once in two years, and generally giving way to blood-letting and leeches to the anus. The hæmoptysis had this time continued three days, accompanied by great embarrassment of the breathing, and a crepitous rattling in the lower part of the left side of the thorax. He had been bled several times before he entered the hospital, both locally and generally, but the hæmoptysis continued. Like the two other patients he took the nitrous mixture. The second day he felt much less enfeebled—the expectoration was not so bloody. The treatment was continued, and the expectoration soon became untinted with blood and puriform. Ultimately, however, the patient sunk with regular hectic fever, presenting, on dissection, several tubercular excavations in both lungs.

We have certainly seen good effects from nitre in considerable doses, given in the common infusion of roses, well acidulated, in conjunction with laudanum in hæmoptysis; but we never gave it in such doses as above, nor have we seen such doses exhibited by others. The remedy is worth trial.*—*Med. Chir. Rev. Jan.* 1826.

Traumatic Tetanus in the Horse.—Mr. Egan, of the 12th Royal Lancers, has published a successful case of this kind in the *Lond. Med. Journal*, for September last, which deserves a

* The liberal use of nitre in hæmoptysis, is a practice which I have for several years strongly recommended in my lectures, and a solution of it in brandy is a popular nostrum in this city.—N. CHAPMAN.

short notice. This disease appears to be of no very unfrequent occurrence in our cavalry during peace, although rare in civil life. It is equally fatal, Mr. E. observes, in the horse as in man. Our author and Mr. Castley, (the Veterinary Surgeon of the Regiment,) have examined many horses who died of tetanus, and the latter has often found the theca of the medulla spinalis discoloured, as well as its covering derived from the pia mater, both exhibiting unequivocal marks of inflammation. Mr. E. can also testify, that the liver, and, occasionally, the lungs, have been often found more or less diseased.

The horse, which was the patient in the present instance, had a wart torn off his abdomen while leaping a wall, and also received a contusion and slight laceration in his hind leg. This happened on the 10th of April, 1824. In three days he was apparently well, and was afterwards exercised daily till the 28th, when his abdomen appeared very much tucked up, as if he had been some time without drink. His tail also began to quiver. 29th. The horse was worse. Masticated his food with difficulty, and his tail shook very much. Three quarts of blood were immediately abstracted. By eight in the evening he exhibited unequivocal symptoms of tetanus and partial trismus. Venesection to three quarts; and a purgative was vainly attempted to be given by the mouth. The entire vertebral column, to the tail, was rubbed with the unguentum lyttæ. The throat, jaws, and the originally injured limb, were also blistered. Purgative enemata were administered. In the middle of the day the poor animal was seized with a paroxysm of acute tetanus and trismus, while a discharge of artillery was taking place in the neighbourhood. 30th. The vesicatories had acted well, and the tetanic symptoms were milder than yesterday. Cold affusion was tried, but aggravated the symptoms. May 1st. By desire of Mr. Castley, half an ounce of extract of opium was placed in the rectum as a suppository. The animal was turned out in the night, which was rather wet and cold. 2d. Tetanic symptoms less acute, but more constant: trismus complete. No motion from the bowels for four days. 3d. Tobacco infusion was now determined on. One ounce of leaf-tobacco was infused in a quart of boiling water, and, when cool, was thrown up per anum. The tetanic paroxysms appeared less acute, and a discharge of dark fluid fæces took place. The enema was repeated in the evening. The

horse got down a quart of drink this day. 4th. Half a pound of tobacco was infused in two quarts of water and thrown up. The greater part of it was retained for ten minutes. It then produced a large fæcal discharge, and considerable nausea. The same tobacco was infused over again, and thrown up. The horse had only one tetanic paroxysm this day—trismus as before. He swallowed two quarts of water this day. 5th. No tetanic paroxysm—moves his jaw a little—and begins to pick at the hay, but cannot swallow it. 7th. There was a relapse and exasperation of all the symptoms. More tobacco enemata were exhibited. These were repeated on the 8th, 9th, 10th, 11th, 12th, and on till the 15th, when the deglutition of fluids was perfectly restored, and no paroxysm of tetanus occurred. From this time the horse convalesced daily, and ultimately escaped from a disease which seldom spares his master.

This case comes in as corroborative of that published, some time since, by Dr. O'Beirne, of Dublin, and which our readers are already acquainted with.—*Ibid.*

Epilepsy.—Dr. Williams, of Liverpool, has lately published a curious case of irregular epilepsy in a female of 11 years of age, which presented a host of anomalous symptoms, such as young females occasionally exhibit, confounding all systems of nosology, and puzzling the most experienced practitioners. First, Miss Bromhead had cramps in the upper and lower extremities—then lancinating pains in one temple and eye, with fixed acute pain in the epigastrium—next convulsive fits, recurring at intervals of an hour, with muscular agitations shifting from place to place in the body. These and several other abnormal symptoms disappeared for ten or eleven days, after a dose or two of oil of turpentine—but whether as a consequence or a mere sequence, we should not like to swear. Be this as it may, the fit returned, after the abovementioned interval, with redoubled violence, lasting two hours, and leaving the girl *speechless*, with “the full command of her tongue.” The aphonic state soon disappeared, but left a host of morbid symptoms, more of the choreal than the epileptic character. After a series of ever-changing phenomena, among which were the loss of sight in one eye and the loss of hearing in one ear, she was put on a course of *argentum nitratum*, having been first affected constitutionally

by mercury. In three days the fits ceased, and, in short, all the other alarming symptoms vanished. The nitrate was continued for some time, and the girl recovered. It will hardly be contended that three days of the *argentum nitratum* operated this magic cure. We have much doubt whether medicine had any hand in the fortunate change, having seen such wonders performed *by Nature* in girls of a tender age. For the honour of the healing art, however, "tell this not in Gath." Let us claim all that is due to physic—and also a little of what Dame Nature can easily spare on such occasions.—*Ed. Journal, October.*

ANATOMY AND PHYSIOLOGY.

Hypospadidos.—Two cases of this peculiarity of conformation, in which the urethra terminated under the glans penis, and just before the frenum, have been lately made public by Dr. Gunther. The subject of one was a Lutheran priest, whose wife was of a character not to be suspected, and had borne him five children. The other subject had given rather inconvenient proofs of his power to exercise the great privilege of his sex, and sought to avoid the consequences by a plea of impotence: the plea was very properly disallowed, and two years afterwards he married, and became the father of several children. There seems nothing surprising in these cases; no necessity for having recourse to the *aura seminalis*. But Mr. Holard and Mr. Formey assert, that they have known instances in which fecundation has taken place, though the urethra opened into the perinæum: a case it must be confessed, of more difficult solution.—*Bulletin des Sciences Méd.*

The Hymen—Disposed and formed in an unusual manner.—Dr. Campbell, lecturer on midwifery in Edinburgh, has lately, it appears, discovered in a still-born fœtus a *hymen* disposed and formed in a very unusual manner.

The hymen is in the form of a strong band of condensed cellular membrane, about a quarter of an inch apparently in breadth; and extends in an oblique direction from the pubic to the sacral surface of the vagina, the passage being at the same time open on each side of this ligulated production.—(Vide *New Edin. Med. Journ. January, p. 244.*)

Influence of Exercise and Diet, &c. on Respiration.—It has been found that the quantity of air deteriorated by respiration in a given time, will vary with the *degree of exertion* made by the animal confined in it.

Thus Lavoisier states, that a man, under ordinary circumstances consumes about 1,300 or 1,400 cubic inches of oxygen in an hour: but that if he be engaged in violent exercise, (as in raising weights,) the consumption may rise to upwards of 3000 inches in that time.

The practical inference to be deduced from this fact is obvious, namely, that when it is an object to economise the oxygen of the air, we should remain tranquil. It was accordingly observed in the *black-hole* at Calcutta, that those who were quiet and orderly suffered the least. And in like manner it has been affirmed, that a person who falls into the water in a state of *syncope* will remain a much longer time submerged with impunity than one who is in a condition to exert his muscular energies.

The proportion of oxygen consumed by respiration appears moreover to be influenced by the nature of the *diet*.

Thus Mr. Spalding, the celebrated diver, found that he consumed the oxygen of the atmospheric air contained in his diving-bell in a much shorter time when he used a diet of *animal* food, than when he used one of *vegetables*; and therefore he made it a rule to confine himself to the latter when professionally employed. The same effect was observed by him to follow the use of *fermented* liquors; and therefore on these occasions he in like manner drank nothing but *water*.

The consumption of oxygen during respiration seems also to be influenced by the state of the stomach, with respect to *fulness* or *emptiness*, &c. Thus it appears to be at its maximum while the process of *digestion* is going on, and at its minimum perhaps in the morning, when the stomach is empty and unemployed—a fact well known, in some of its consequences at least, to the Indian pearl-divers, who always abstain from every kind of food for many hours before their descent into the water.

From these remarks, independent even of more particular observation, the physician may gather how necessary it is to regulate strictly the *diet* and *regimen* of the patient in all cases where the pulmonary organs are morbidly affected.—Vide *Paris's Medical Chemistry*, p. 322.

Electricity.—Since the discovery of electricity, the most distinguished philosophers have concurred in regarding it as the principal agent in some of the most important phenomena of animal life. Their opinion, however, for a long time, seemed to be supported rather by analogy than by direct evidence. Comparatively but a few months have elapsed, since two Swiss physiologists, Prevost and Damas, proved that muscular contractions, in whatever manner excited, whether mechanically or chemically, are invariably accompanied by a development of electricity. It still remained to be decided whether this electricity be necessarily present as the essential cause, or merely as an accidentally associated phenomenon. The following experiments appear to carry us a step farther towards the decision of the question.

Dr. Edwards has investigated the effects produced by touching a nerve in a manner which had been but little attended to. It consists in passing a solid body along a nerve, in the same manner in which we pass a magnet along a bar of steel which we wish to magnetize.

He conducts the experiment in the following manner:—He lays bare the sciatic nerves of a frog, in that part of their course in which they are situated on the sacrum, leaving unimpaired their connexion with the spinal marrow, and with the muscles to which they are directed. He removes the skin from the posterior extremities, that the movements of the muscular fibres may be visible, and intercepts volition by dividing the spinal marrow just below the head. He then places under the nerves a slip of oiled silk by which they are raised and supported on a level with the bone. If a metallic rod be now drawn lightly along the denuded nerve in the mode above-mentioned, muscular contractions will be excited. This effect is produced, whatever be the metal employed. It is not even necessary that the rod should be metallic. Horn, glass, ivory, or any other solid body will answer the purpose, but their influence is by no means the same. Though Dr. Edwards clearly ascertained this fact, continual variations in the irritability of the animal precluded the possibility of establishing a scale. The Doctor then substituted for the oiled silk, which is a very complete non-conductor of electricity, a slip of muscle perfectly similar as to form and size, but which it will be remarked is an excellent conductor. A repetition of the contact now no longer caused contractions, or,

at most, they were extremely feeble. In the first experiment, the electricity developed by the contact of the nerve is retained, and its influence is concentrated on the nerve itself. In the second case the electricity is abstracted. If the presence of electricity were merely adventitious, Dr. Edwards thinks that the same mechanical excitation ought, in both cases, to produce the same effect, but the difference is decided. He, therefore, concludes that electricity is essential to muscular contraction.—*Med. Chir. Rev. Jan. 1826.*

MIDWIFERY.

Remarkable Case of Rupture of the Uterus, and of the safe Delivery of the Woman by the Cæsarean Operation. By Dr. LUDWIG FRANK, at Parma. Angelica Grossi, aged 44, native of Parma, and the mother of five children, was taken in labour of her sixth child at the beginning of the ninth month of pregnancy, August the 9th, 1817. A midwife was called, who afforded her the necessary help; but as the patient was standing up, she was suddenly seized with vomiting and faintness, and was therefore immediately conveyed to bed by the midwife and attendants. At the instant she was laid on the bed, she felt something give way in the abdomen, and then, to use her own expression, it appeared to her as if there were two children in the womb. Under these circumstances, a surgeon was sent for, who recommended to her rest, as he conceived the sensations of the woman arose from the motions of the fœtus during the act of vomiting. But the midwife finding that the abdomen was more and more distended, that the vomiting continued, and the breathing was difficult and interrupted, sent for Dr. Joseph Rossi, professor of midwifery. Professor Rossi, on a minute examination, decided that the uterus was ruptured; and after consulting with his father Dr. Francis Rossi, and other practitioners in the town, he, in common with his colleagues, decided that the Cæsarean operation was absolutely indicated in the present case. The operation was performed two hours' after the rupture of the uterus is supposed to have taken place, by Professor Cecconi, in the presence of the two Drs. Rossi, Professor Pizetti and others. The incision was made on the left side of the abdomen, just in the spot where the feet of the child could be felt. After

the incision was made, the feet immediately presented themselves to view; and the living child, together with the placenta, were then removed. Forty days after the operation, the patient was perfectly restored, and able to walk out. Her menses some time after this appeared; and in the space of three years from this period, the same woman was delivered of a seven months' child, which lived fourteen days. Over the spot where the incision was made in the abdomen, a cicatrix of the size of an apple remained, which, although it could never be completely healed, caused the patient very little inconvenience.—*Salzburger. Medic. Zeitung, Feb. 1825. p. 255.*

Uterine Hæmorrhage.—Dr. Bedel has related, in a late number of the *Gazette de Santé*, a curious case of this kind, in which he was induced, all other means failing, to plug—not the vagina, but the uterus itself. The patient, after a tedious labour, and the extraction of the placenta, had lost, according to the Doctor's computation, fifteen pounds of blood—had successively fainted—and appeared in the jaws of death. In this extremity, and having exhausted all the usual means of arresting the hæmorrhage, he prepared to plug the vagina. But reflecting that if the vessels poured forth blood internally, the patient might be destroyed by the quantity which the uterus itself would hold, he decided on plugging the latter organ from the fundus. He, therefore, introduced successive balls of dressed hemp, (the only thing at hand,) each about the size of an orange, and to the number of eight, so as to completely fill the uterine cavity. By this procedure, and by the application of pressure on the abdomen, the hæmorrhage was completely arrested, and the patient soon revived so far as to be able to speak. Dr. B. determined not to withdraw the waddings till the next day. No hæmorrhage intervened. On the following day he introduced the hand and grasped one of the tampons. By means of a hook, he contrived to extract the plug without removing the hand already in the vagina. In this way he went on, and successively, as well as successfully, withdrew the whole of the plugs. There was no more hæmorrhage, and the patient did well.

There are no comments made by Mr. Miguel, (the editor, who is himself a noted accoucheur,) but we confess that the process appears to us of very doubtful utility. It is on contraction of the

uterus that all our hopes of arresting hæmorrhage depend, and this contraction cannot take place, when its cavity is stuffed with a foreign substance.—*Med. Chir. Rev. Jan. 1826.*

Transfusion of Blood.—Mr. Waller, of Aldersgate-street, has lately performed this operation in a case of uterine hæmorrhage, the particulars of which case we now lay before our readers.

The female was of delicate strumous habit. A large quantity of liquor amnii had been discharged before our author's arrival, but there being no appearance of speedy delivery, Mr. W. left the patient, three hours after which the pains came on and the child was soon born. Mr. Jesse was then in attendance, and soon after delivery Mr. W. was sent for. He found the patient "to all external appearance, dead." She was lying on her back completely blanched—lips bloodless—hands and feet cold—power of deglutition suspended—no apparent respiration. Some trifling pulsation, however, could be felt in the radial artery. It was found that the expulsion of the placenta had been followed by a profuse hæmorrhage, and the state of collapse above described. The proper applications had been made to restrain the hæmorrhage, but there was still a draining from the uterus. Some brandy and ammonia were exhibited internally. The power of deglutition returned—and the pulse rose a little after each administration of stimuli, but soon sunk again. The hæmorrhage ceased entirely, and the patient was getting generally cold. She was wrapped up in blankets, and the brandy continued, but with no better success. Dr. Blundell was now summoned, and attended; but, as the pulse was perceptible, it was not judged proper to perform the operation of transfusion at that time. In an hour, the patient had rather lost than gained ground. The operation was therefore determined on and performed in the usual manner, the blood being drawn from the patient's husband. Two ounces were injected, but no effect was apparent. Two ounces more were thrown in, and a tendency to syncope was observed, the pulse falling a little. Some effort at vomiting was also evinced. These symptoms ceased spontaneously, in a minute or two. The patient expressed herself as easy, and no more blood was injected. The pulse fell from 120 to 110, but was still very feeble. In six hours the patient had rallied considerably—pulse 100 and rounder. Complained of hunger. A nourishing diet was allowed her, and she recovered without a bad symptom.

We think that this case can only go to prove that the operation may be done without disadvantage. It would be injudicious to claim more in the present instance—but this is a great point gained for the proposers of the transfusion.

Since the above, another case, less equivocal, has occurred in the practice of Mr. Doubleday, where a female was on the point of death, from uterine hæmorrhage, both before and after the separation of the placenta. The poor woman being nearly moribund, Dr. Blundell was called in, and advised the operation of transfusion. It was objected to, but afterwards Mr. D. himself performed it, and evidently with the best effects. The patient appeared to be snatched from the jaws of death by the transfusion of 14 ounces of blood.—*See Med. and Phys. Journal for November, 1825.*

A third case has recently occurred, in the practice of Mr. Wright, and under the eye of Dr. Uwins and some other medical gentlemen. The transfusion was had recourse to, as a dernier resort, and there is every reason to believe that life was preserved by the operation. Upon the whole, we are disposed to view transfusion in a favourable light, when carefully performed, and under circumstances where all other means have failed.—*Med. Chir. Rev. Jan. 1826.*

AMERICAN INTELLIGENCE.

Dysentery.—In a note to page 265, No. 2, of this Journal, it is stated that in several instances I had observed *vinegar* to be injurious to dysenteric patients. On this note the Editor of the London Medical Repository, (p. 281, No. 147, March, 1826,) makes the following remarks:—

“The experience of Dr. Godman upon this point, however, though it may be very useful to himself, cannot for the present be of much service to the profession—for he has entirely omitted to state in what *stage* of the disease his patients were, or under what form or variety of it they laboured.”

To supply what is deficient in the note above-mentioned, it may now be stated that the cases alluded to occurred while I was attending the Infirmary of the Maryland Penitentiary, during the illness of the then physician, my friend, Dr. T. H. WRIGHT. The convicts were very frequently attacked by an obstinate, though not highly inflammatory dysentery, which

rapidly prostrated their strength by the great number of bloody mucous discharges, and continued febrile irritation. Vinegar, and indeed every acid substance, was productive of a distressing increase of all the bad symptoms, in *every* case, without reference to the period of the disease or the strength of the patient. The opportunity of ascertaining this, was afforded by the rashness of the patients, who in spite of repeated admonition would purloin vinegar from the nurse to mingle with their flaxseed tea; which they found to be *peculiarly* insipid, owing to a small quantity of tartar emetic, which, unknown to them, was dissolved in it.

J. D. GODMAN.

FOURTH ANNUAL REPORT OF THE PENNSYLVANIA INFIRMARY FOR DISEASES OF THE EYE AND EAR.

Patients attended during the year 1825, with—

Ophthalmia	33	Brought over	94
— Purulent	1	Weakness of sight	1
— Strumous	4	Amaurosis	5
— Pustular	5	Wounds of the Eye	2
— with Granular lids	1	Pterygium	1
— Chronic	1	Anchilops	2
— Rheumatic	1	Lippitudo	12
Opacity of the Cornea	9	Ectropion	1
Ulcers of the Cornea	7	Entropion	1
Vascular with thickened Cornea	5	Encysted tumour of eye lid	2
Hypopion	4	Erysipelatous Inflammation of eye lid	1
Procidencia Iridis	1	Paralysis of upper eye lid (Ptosis)	1
Iritis	6	Otitis	1
— with Cataract	1	Deafness	17
Cataract	14	Ulcer of the external meatus	12
— with Amaurosis	1		
Carried over	94		153

Of this number 95 have been discharged, cured, 16 relieved, 6 incurable, 18 are irregular, or the result not known, and 18 remaining under treatment.

ISAAC HAYS, M. D.	} Surgeons.
JOHN BELL, M. D.	
R. EGLESFIELD GRIFFITH, M. D.	
WILLIAM DARRACH, M. D.	
P. S. PHYSICK, M. D.	} Consulting Surgeons.
WILLIAM GIBSON, M. D.	

UNIVERSITY OF PENNSYLVANIA.

APRIL 7th, 1826.

At a Public Commencement, held this day, the following gentlemen were admitted to the Degree of Doctor of Medicine.

PENNSYLVANIA.	SUBJECT OF THESIS.
Isaiah R. Matlack, - - - -	<i>Dysentery.</i>
Isaac Bruner, - - - -	<i>Medical Topography and Epidemics.</i>
John B. Craighead, - - - -	<i>Gunshot Wounds.</i>
Jacob Baughman, - - - -	<i>Trachitis.</i>
George Smith, - - - -	<i>Cynanche Trachealis.</i>
John W. Burrel, - - - -	<i>Influenza.</i>
Samuel F. Ralston, - - - -	<i>Hepatitis.</i>
Jushua W. Ash, - - - -	<i>Hernia.</i>
Charles Randolph, - - - -	<i>Mania à Potu.</i>
Alexander H. Whitman, - - - -	<i>Improvements of Surgery.</i>
Jonathan B. Willauer, - - - -	<i>Dysentery.</i>
Thomas Wharton, - - - -	<i>Blood-letting as a Preventive of Inflammation in wounded Joints.</i>
Caspar Morris, - - - -	<i>Medical use of Sulphur.</i>
Samuel G. Clarkson, - - - -	<i>Amenorrhæa.</i>
Jacob Pennypacker, - - - -	<i>Idiopathic Dyspepsia.</i>
William Seal, - - - -	<i>Cholera Morbus.</i>
Daniel Baugh, jr. - - - -	<i>Tracheitis.</i>
Mark Darrah, - - - -	<i>Bilious Cholic.</i>
Harper Walton, - - - -	<i>Morbus Coxarius.</i>
John Chapman, - - - -	<i>Suspended Animation.</i>
Abraham Helffenstein, - - - -	<i>Dyspepsia.</i>
Henry K. Lathy, - - - -	<i>Dyspepsia.</i>
Joseph Trevor, - - - -	<i>Foreign bodies in the œsophagus and œsophagotomy.</i>
Isaac P. Trimble, - - - -	<i>Phlegmasia Dolens.</i>
George Mifflin, - - - -	<i>Uterine Hemorrhage.</i>
William C. McCall, - - - -	<i>Cholera of the East.</i>
Jacob Lentz, - - - -	<i>Trachitis.</i>
John Gregg, - - - -	<i>Nitric Acid in the Pectoral Affections.</i>
Henry Lardner, - - - -	<i>Arthritis.</i>
William Ashmead, - - - -	<i>Hepatitis.</i>
Edward Swift, - - - -	<i>Injuries of the Head.</i>
Joseph Shallcross, - - - -	<i>Dysentery.</i>
Jacob Glatz, - - - -	<i>Rheumatism.</i>
Charles Abercrombie, - - - -	<i>Fractures of the Thigh.</i>
Charles Mifflin, - - - -	<i>Injuries of the Head.</i>
Charles Woodward, - - - -	<i>Phthisis Pulmonalis.</i>

NORTH CAROLINA.

James H. Shepperd, - - - -	<i>An Inquiry into the Secretion of Bile.</i>
Willis Munroe Lea, - - - -	<i>Mania à Potu.</i>
William D. Jones, - - - -	<i>Dysentery.</i>

Isaac Hall, - - - - -	<i>Dysentery.</i>
Martin Read, - - - - -	<i>Hemorrhoids.</i>
Ellis Malone, - - - - -	<i>Sick Head-Ache.</i>
Levi Walker, - - - - -	<i>Opium.</i>
James Aug. Washington, -	<i>Mania à Potu.</i>
James T. Gilliam, - - - -	<i>Dysentery.</i>
Matthias E. Sawyer, - - -	<i>Variola.</i>
James B. Slade, - - - - -	<i>Ptyalism.</i>
Richard W. Thomas, - - -	<i>Vesicating Properties of the Juglans Cinerea.</i>

DELAWARE.

Joseph Thomas, - - - - -	<i>Dyspepsia.</i>
William Johnson, - - - - -	<i>Cholera Infantum.</i>
Theodore Physick, - - - -	<i>Dysentery.</i>
Edward Worrell, Jr. - - -	<i>Dysentery.</i>
Henry F. Askew, - - - - -	<i>Gout.</i>
Thomas R. Brinckle, - - -	<i>Chronic Hepatitis.</i>
Manuel E. Robinson, - - -	<i>Secale Cornutum.</i>
Richard Sexton, - - - - -	<i>Mania à Potu treated by Spider's Web.</i>
Thomas J. Squibbe, - - -	<i>Dyspepsia.</i>
Samuel Pleasonton, - - -	<i>Cholera Infantum.</i>
Solomon Sharp, Jr. - - -	<i>Inflammation.</i>

GEORGIA.

Roger Q. Dickinson, - - -	<i>Diseases of the Spleen.</i>
William S. Jones, - - - - -	<i>Acute Peritonitis.</i>
Hopson M. Hubbard, - - -	<i>Music as Applicable to Diseases.</i>
Edward Hughes, - - - - -	<i>Cynanche Trachealis.</i>
Phineas M. Kollock, - - -	<i>Mania à Potu.</i>
James F. Watkins, - - - -	<i>Amenorrhœa.</i>

OHIO.

Edward Stanbery, - - - - -	<i>Lactucarium.</i>
John Andrews, - - - - -	<i>Functional Derangement of the Liver.</i>

SOUTH CAROLINA.

Robert R. Durant, - - - - -	<i>Acute Hepatitis.</i>
William B. Moore, - - - - -	<i>Strictures of the Urethra.</i>
William R. T. B. Prior, - -	<i>Physiology and Pathology of the Stomach.</i>
John Bellinger, - - - - -	<i>Critical Days.</i>
David Evander Reid, - - -	<i>Hydrocephalitis.</i>
Joseph Lee, - - - - -	<i>Ipecacuanha.</i>
Amasa S. Park, - - - - -	<i>Cynanche Trachealis.</i>
Edward M. Beckett, - - -	<i>Dentition.</i>

VIRGINIA.

Gustavus R. B. Horner, - -	<i>Marasmus.</i>
Burton B. Wright, - - - -	<i>Cholera Morbus.</i>
Samuel Moseley, - - - - -	<i>Cholera Infantum.</i>
William R. Taylor - - - - -	<i>Chorea Sancti Viti.</i>
John H. Griffin, - - - - -	<i>Mania à Potu.</i>
James Keen, - - - - -	<i>Hæmoptysis.</i>
George T. Hutchings, - - -	<i>Cholera Infantum.</i>
John A. Cunningham, - - -	<i>Clothing.</i>
George Aug. Sykes, - - - -	<i>The Effects of Drinking Cold Water.</i>

George A. C. Barham,	- - -	<i>Pneumonia Biliosa.</i>
David Bowman,	- - -	<i>Hæmoptysis.</i>
John N. Faulcon,	- - -	<i>Cholera Infantum.</i>
William Shultice,	- - -	<i>History and Pathology of Epilepsy.</i>
John Jefferson Hall,	- - -	<i>Acupuncture.</i>
Mason Locke Weems,	- - -	<i>Capillary Circulation.</i>
William L. E. W. Fauntleroy,	- - -	<i>Modus Operandi of Emetics.</i>
Joshua Nicholas,	- - -	<i>Acute Hepatitis.</i>
St. Pierre Shackelford,	- - -	<i>Hepatitis.</i>
Thomas J. Adams,	- - -	<i>Hæmoptysis.</i>
Walter Somerville,	- - -	<i>Diagnosis of Disease.</i>
Alexander Copland,	- - -	<i>Measles.</i>
William Alexr. Spark,	- - -	<i>Temporal Arteriotomy and its Application.</i>
Richard A. Urquhart,	- - -	<i>Gastritis.</i>
Francis T. Meriwether,	- - -	<i>Pathology and Mode of Treatment of Tympanitis.</i>
Alexander W. Tennent,	- - -	<i>Pneumonia Biliosa.</i>
Leven Lockett, Jr.	- - -	<i>Cholera Infantum.</i>
Thomas C. Overton,	- - -	<i>Menstruation.</i>
Hugh Wilson,	- - -	<i>Puerperal Fever.</i>
John Ingles, Jr.	- - -	<i>Rheumatism.</i>
Thomas Meaux,	- - -	<i>Heat a Cause of Bilious Diseases.</i>
George Terrill,	- - -	<i>Medical Observations made during a short Cruise on the Western Coast of Africa, in the summer of 1824.</i>
John Hunter,	- - -	<i>Dysentery.</i>

MARYLAND.

Albert Ritchie,	- - -	<i>Relative virtue of Concentrated and Compound Medicines.</i>
Samuel W. Groome,	- - -	<i>Dysentery.</i>

TENNESSEE.

John B. Groves,	- - -	<i>Protochloride of Mercury.</i>
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NEW YORK.

Daniel J. Carroll,	- - -	<i>Morbid Effects of Drinking Cold Water.</i>
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NEW JERSEY.

William Coryell,	- - -	<i>Croup.</i>
John Cox Davis,	- - -	<i>Ophthalmia.</i>
William Smith,	- - -	<i>Dysentery.</i>

W. E. HORNER, M. D. Dean.

Irregularities of Structure.—During the month of February last, I dissected a subject, in which the following very remarkable departure from the ordinary distribution of the carotid artery occurred. The *inferior thyroid* artery of the right side, instead of arising from the subclavian artery as usual, was given off *from the trunk of the COMMON CAROTID ARTERY*, nearly opposite the inferior extremity of the thyroid gland, full two inches and a half below the bifurcation of the carotid, and the origin of the superior thyroid artery. This unusual inferior thyroid artery, arose from the inside and near the posterior surface of the common carotid.* Its distribution in the gland was analogous to the branch of the left side, which was perfectly regular. The regular inferior thyroid branch of the right side, arose from the subclavian as usual, but instead of terminating in the thyroid gland, passed down towards the anterior surface of the vertebræ, and was distributed in three principal branches on the back part of the œsophagus, a little higher up than the iniddle of the thyroid gland. The muscle of the thyroid gland was peculiarly distinct in this subject, having its artery injected, and the muscular belly, and the white, (probably tendinous,) insertion into the os hyoides very distinct. The muscle when thus perfect, is always found arising from the left side of the gland: when it arises from the isthmus, or from the right side, it has always appeared to be rudimental. It was found distinctly marked in eight instances during the last winter's dissections at the Philadelphia Anatomical Rooms.

A remarkable instance of irregular distribution of the vessels about the arch of the aorta is given in the present number of this journal, by Mr. G. SPACKMAN, S. M. It is of a very similar irregularity, that JOHN BELL makes the following remarks. "The arch sometimes give out four branches, and the left subclavian arising first from the arch has passed behind the trachea, betwixt the trachea and the œsophagus. The subject dying of difficult deglutition, which has subsisted from childhood, it has been attributed to the pressure of this preternatural artery, an

* I have not yet been able to find an instance on record in which a branch has been given off from the common carotid artery. None of the anatomists I have enquired of have met with a similar origin of the inferior thyroid artery.

effect which I cannot easily believe," p. 71, vol. 2. There can be no doubt but that the functions of deglutition and respiration would be both very much impeded by an aneurismal dilatation of an artery thus irregularly placed, and the possibility of such a distribution should be recollected in all cases of obstructed deglutition, where no more obvious cause can be assigned. The subject dissected by Mr. S. was the third instance in which very similar irregularities of distribution of the vessels arising from the arch of the aorta, had occurred at the Philadelphia Anatomical Rooms, within the last four years.

There are some persons who occasionally ask with all the pomp of self-accredited wisdom, "of what use" are observations of such singular or anomalous circumstances? To such interrogators, with all due deference, we would remark, that it is the business of the anatomist to record whatever peculiarities of structure a careful examination of nature may present to his view; it not being his business to give the reason *why* aberrations or varieties of structure occur, but to make a faithful statement of the exact condition in which they are found. Were this obvious duty more generally attended to, we might possibly have less of conceited and irrelevant criticism, but the profession would certainly derive an augmentation of power from the improved condition of anatomy, physiology, and pathology.

Instance of misplaced Testicles.—I examined the body of a negro man, 35 or 40 years old, in February last, and was surprised to find that although the pubes, penis, and indeed the whole body exhibited all the usual marks of virility, that there were *no testicles in the scrotum*; the bag being shrunk up to the size of an ordinary walnut, and retracted in the centre, or in the direction of the raphé, so as to give the sides of the scrotum something of the appearance of the labia occasionally observed in those malformations considered as hermaphrodite. As there was no cicatrix on the scrotum, it was concluded that the testicles had possibly been removed by absorption, in consequence of some constitutional disease. There was no evidence of the presence of the testicle to be discovered below the ring, before the skin was divided. When the integument and superficial fascia were removed, the external abdominal ring was found dilated to thrice its natural size, and occu-

pied by a soft tumor, which appeared like the extremity of a small hernial tumor. When the tendon of the external oblique was cut through, opposite the anterior superior spine of the ilium, and from its middle part down to the pubis, and reflected, the testicle covered by its vaginal tunic, was seen occupying the space between the internal and external abdominal rings, or what is generally called the spermatic canal. The left testicle was situated immediately in the external abdominal ring, having about one-third of its length through the ring on the outside. From the inferior extremity of the tunica vaginales, a string of substance, looking like fat mixed with a firm membrane, descended into the scrotum. The tunica vaginales was closed above the testicle, and except that the length of the cords was less, in other respects the parts of the spermatic apparatus within the belly, were arranged as usual. Were an individual with a similar arrangement of the genitals to be accused of rape, or sued on account of a bastard, it is possible that the plea of impotence might be made and maintained with much appearance of success. But there is not the least probability that during the life of the subject above described, any difficulty was experienced from this condition of the testicles, or that he could not procreate his species. At least, the development of the whole genital apparatus was such, as to leave very little doubt of the virile powers of the individual when living, notwithstanding the testicles were thus misplaced and concealed from external examination.

J. D. GODMAN.

To the Medical Society of Franklin County.

Your committee, having met agreeably to appointment, do report, that after attentively hearing the testimony of Drs. Dean and Little, respecting their claims to the priority of using mercurial ointment as a topical remedy in erysipelas, that Dr. Dean has the priority of Dr. Little in the use of the remedy.

JOHN M'CLELLAND,*

JOHN BOGGS,

L. BYRNE.

July 15th, 1825.

We, the undersigned, officers of the Medical Society of Franklin County, Pa. do certify, that Drs. M'Clelland, Boggs, and

* Dr. M'Clelland is President of the Medical Society.

ADVERTISEMENT.

The Publishers of the Philadelphia Medical and Physical Journal respectfully inform the public that they have made arrangements for publishing the future numbers on another type and with a larger page, by which the extent and usefulness of the work, will be increased, without additional expense to the subscribers. The publishers have determined to spare neither pains nor expense to render it worthy of the liberal patronage which has uniformly been extended to this work from its commencement to the present time.

The measures which the Editors have adopted are such as render it certain that the Journal will contain a full and valuable collection of original papers from some of the most respectable sources in this country, illustrated with engravings whenever necessary; reviews and notices of all the new Medical books as they are received; an ample digest of the most interesting intelligence contained in the European Journals, and a copious summary of all the valuable communications published in the American Periodicals.

* * Subscribers who have not remitted the amount of their subscriptions for the year now completed, are requested to do so without delay. Agreeably to the rule the publishers have hitherto uniformly acted upon the Journal for the succeeding year cannot be forwarded till the present is paid for.

TO READERS AND CORRESPONDENTS.

The following original papers are on file for the next number of this journal:—

On the Influenza, or Epidemic Catarrh, as it appeared in Georgia, during the winter and spring of 1826. By ALEXANDER JONES, M. D. of Lexington, Ga.

Observations on Fever, by SAMUEL JACKSON, M. D. one of the Physicians to the Philadelphia Alms-house Infirmary.

Practical Observations on Purulent Ophthalmia. By ISAAC HAYS, M. D. one of the Surgeons to the Philadelphia Infirmary for Diseases of the Eye and Ear.

On Indigestion. By N. CHAPMAN, M. D.

Notes of some singular irregularities in the Arterial System, collected while pursuing the study of Anatomy in Europe. By W. DARRACH, M. D. with an engraving.

Account of some experiments made with Phosphorus. By JOHN D. GODMAN, M. D.

Also, papers from Dr. DEWEES; and Drs. FRANCIS and MACNEVEN of New York.

To a correspondent who sent a paper written in a hotly controversial spirit, we beg leave to remark that we have never intentionally given currency, either to personal attacks or party railings. This Journal was instituted solely with a view to the advancement of science and the elevation of the medical character, and we have with scrupulous care excluded every thing tending to lessen the respectability of the profession, by producing discord among its members. We wish not to wound the self-love of any individual, when we take the liberty of stating our deliberate conviction that the personal squabbles of our professional brethren are not of the slightest consequence to the public at large, who generally laugh at, or despise both parties in proportion to the ridiculousness or virulence of their warfare: the profession itself, however, suffers severely in public estimation, when so much passion and violence are exhibited by its members. To those who are desirous of aiding in the laudable effort to enlarge the boundaries of our science by a philosophical discussion of any of the almost numberless topics connected with medicine, we tender a fair field for the exercise

To Readers and Correspondents.

of their intellectual strength, and invite from them the freest communication.

The interesting communications from Drs. HORNER and GEDDINGS, given at the end of the present Number, came too late to be introduced at the proper place. We preferred to insert them where they now stand, rather than defer them until the next Number.

Authors of new medical books, desirous of having them reviewed or noticed in this journal at the earliest opportunity, are invited to transmit us a copy as soon after publication as convenient, when they will receive prompt attention. Under ordinary circumstances very considerable delay is caused by the circuitous routes through which they reach us. Persons desirous of having works on which they are engaged announced, will please to be particular in stating the titles of their productions at length.

Papers intended for publication, should be sent as early after the appearance of the Journal as possible, in order to be in time for the ensuing number. Such communications should be addressed to "H. C. Carey and I. Lea, Philadelphia; for the editors of the Philadelphia Medical and Physical Journal." All letters on the *business* of the Journal to be addressed exclusively to the publishers.

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THE
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MEDICAL AND PHYSICAL
SCIENCES.

ART. I. *Observations on Hernia Cerebri.* By WILLIAM W. STEWART, M. D. of Alexandria, Louisiana.

IN this paper I design not to enter into a relation of minutiae, which would neither be interesting nor useful, and would merely extend it beyond the proper limits, but to state explicitly and concisely the most prominent symptoms, offer some remarks relative to the cause, and a few observations upon the treatment of *Hernia Cerebri*.

On the twenty-eighth of October, 1821, I was called to a boy, nine years of age, the son of a gentleman of Franklin county, Tennessee,* who had been kicked on the head by a horse, upon the os parietale of the left side, in the evening of the same day. It was about ten o'clock at night when I arrived, and found him labouring under a train of complex symptoms; among which those of concussion and compression appeared conspicuous, but principally the latter. The symptoms, however, were partially mitigated, and assumed more regularity before day-break.

* I then resided at Winchester, Tennessee.

After this he occasionally gave dull slow answers to interrogations; was measurably insensible to pain, yet seemed to take some cognizance of things around him when roused from the drowsiness, stupor, and insensibility he still remained in, which was exceedingly difficult to effect. In this situation he continued until the ensuing day, without any material alteration.

The scalp was lacerated and detached to a considerable extent, and before my arrival, the father of the boy, in a paroxysm of paternal terror, had filled the wound with spirit of turpentine. This was immediately followed by a succession of convulsions, with short intervals between each; but which disappeared in a few hours, nor did they assume any great degree of violence. It had free access to the dura mater as was afterwards ascertained.

By means of a probe or finger, fracture and depression were readily discovered; but their extent remained unknown, until the detached scalp was laid freely open and raised from the skull; when this was done about two-thirds of the parietal bone appeared to be exceedingly injured. The fracture was irregular, and extended through the bone, though the depression was very inconsiderable except at the place which received the blow. After some ineffectual efforts to extract the fragments, in order to supersede the necessity of using the trephine, its application became indispensable for their removal. It was applied to the superior posterior part of the bone, and a number of fragments extracted, together with a portion of the horse's hoof and other extraneous matter; one of the largest fragments had incised the dura mater and substance of the brain, and penetrated some distance into the latter. This portion of bone was firmly fixed in the brain, and the principal source of compression. The fractured and depressed surface was wedged fast by the part of the hoof, which had been impelled into and broken off between the fragments of the skull, under which it was found.

The edges of the scalp were drawn together by the interrupted suture and adhesive strips; the wound dressed with a warm bread and milk poultice, and the patient put upon

a strict antiphlogistic regimen; which was modified while continued, as circumstances indicated. In a short time after the operation, the symptoms of compression were much relieved, although rationality was not perfectly restored.

The day following the extremities of the opposite side were paralytic and the boy rational. Some days after this every circumstance began to wear a flattering aspect—the paralysis of the extremities daily diminished; the countenance lost its wild appearance, and assumed that of composure and serenity; a kindly suppuration was induced, succeeded by still more favourable symptoms; and the whole wound seemed as if it would be speedily replenished with new parts, except that portion of it where the *ol. terebinthinæ* had penetrated to the *dura mater*.

On the ninth and tenth days the stitches came away, which afforded a better opportunity of examining its real condition in that place. Here the wound was destitute of that florid, healthy character it exhibited elsewhere, was somewhat pale and apparently relaxed, and continued in this condition, with but little alteration four or five days. On the sixteenth day, this part presented an appearance a little darkish, though scarcely perceptible, and was evidently elevated. I immediately anticipated a gangrene and *hernia cerebri*, which were both realized. On the seventeenth, symptoms of gangrene were distinctly marked, and the elevation still more obvious, though as yet very inconsiderable. The day after a darkish, extremely offensive sanies was discharged from this part of the wound, and all of it began to lose its florid complexion. Mortification soon spread itself over the injured surface, and completely laid the wound open.

The *dura mater* with all the new forming parts, and a portion of the scalp sloughed; and at the same time, the elevation or protrusion of the brain, became more and more extensive every day; this, when the sloughing was arrested, presented a *hernia* of this description of no ordinary magnitude, which continued to increase with unabated rapidity for a number of days.

During this process the paralysis of the extremities recurred again, and so powerfully that the patient was incapable of manifesting the slightest degree of voluntary muscular action, in either the arm or leg of the opposite side. In addition to this, a variety of other nervous phenomena were super-added; as spasmodic affections of the gastrocnemii muscles, particularly of the paralytic leg, which occurred occasionally with great violence; also of the muscles of the affected arm, but with less violence; likewise, in those of the opposite side of the face, which amounted to hideous distortions of countenance, and these latter associated with irregular actions in some of the other facial muscles:—at the same time, a paralysis or debility of the tongue existed, which incapacitated him for articulation; so much so, that he was unable to utter a single word, with the exception of *no*, which was scarcely intelligible. I am unable to state the number of days he was in this condition, but recollect the first word he was able to add to this was *yes*.

On the accession of the gangrene and hernia, his countenance altered: it assumed and retained, until far advanced in convalescency, a depressed, dirty, sallow, cadaverous cast, in which the eyes fully participated, as they had no effusion nor engorgement of blood at any time.

The opening in the cranium was of an irregular semi-lunated form, whose longer diameter was near three, and shorter near two inches. The basis of the tumour necessarily corresponded to its configuration and dimensions; and the tumour itself exhibited an irregular semi-lunated cone, with its apex, (which was full two inches from its base,) pointing obliquely upward and backward.

Its pulsatory motion was not as strong as might have been expected in this state of things; and this it retained with great uniformity, when uninterrupted, and the patient perfectly quiescent, although always susceptible of increment as to force and frequency, by any excitement of the arterial system. It was strictly synchronous, with the systole and diastole of the heart and arteries, yet possessed more energy, in consequence of the local inflammation in the brain; corresponded precisely

to the alternate motions of elevation and depression observable in the brain itself, which are not to be referred, as supposed, by some authors,* and of no slender reputation, to the immediate effect of respiration, by the alternate motions of contraction and dilatation of the lungs.

I caused respiration to be frequently suspended, both previously and subsequently to the removal of the tumour; but no observable effect was produced by this in the motions of elevation and depression, either in the brain or tumour.

During this time the protrusion acquired a greater size and more appalling aspect. The pulse was weak, frequent, and disposed to intermit; and no difference in the state of the system could be discovered calculated to lead to a favourable conclusion; in fact, the patient was in a state of great debility and exhaustion.

The extremity of the tumour had now become a little pendulous, and had a small fungous excrescence on the part which had been injured by the fragment of bone, but which was very superficial and inconsiderable; otherwise, the hernia itself, consisted of a mass of brain nearly as large as a middle-sized orange, though not exactly corresponding to it in configuration, and showed little evidence of disease or disorganization.

It is to be observed, that this fungus had but a day or two since made its appearance, and was not originally connected with the cerebral tumour, and could, therefore, have had no agency in its production; being merely the commencement of the disorganization which it would probably have suffered, could life have been supported long enough, under these circumstances. This spread itself rapidly, though superficially, and possessed a slightly greenish hue.

As the hernia increased in magnitude, it became less and less susceptible of bearing pressure, and at this time could scarcely admit of any; even the lightest dressing, when first applied, was productive of an augmentation of the concomi-

* Galen, Schlitting, and Hales.

tant nervous derangement; particularly in the opposite cheek, side, and extremities.

A new set of symptoms were superinduced, in addition to those enumerated; as great drowsiness, occasional nausea, retching, quivering of the eye-lids, the eye-balls fixed and squinting, grinding of the teeth, alternate contraction and dilatation of the pupils, intolerance of light and sound, pulse extremely weak, and occasionally intermitting; all which seemed to conspire and threaten immediate dissolution, by terminating life in an universal convulsion.

He was, during a great part of this time rational, but unable to make any communication by words, except that above noticed, and would often manifest passion, if his desires were not immediately gratified, which, for obvious reasons, it was not always practicable or expedient to do.

The increased protrusion was attended with a proportionate expenditure of physical power, and also with a correspondent derangement of the intellectual functions. These are the circumstances in which he was placed on the thirty-fifth day.

I have now given a relation of the principal symptoms attending the case up to the present time. The next thing which offers itself for our consideration is the treatment. This I will divide into two parts—the first embracing the practice pursued from the appearance of gangrenous symptoms until they subsided, the sloughing completed, and up to the thirty-fifth day—the second, the treatment subsequently instituted.

As he was previously much reduced by the active depletion employed, and the debility caused by the unfavourable character of the wound, immediately on the accession of the debility, an opposite mode of treatment was instituted. Cinchona and elix. vit. were administered freely, though the latter more so than the former, and a cordial nourishing diet allowed. The cinchona soon produced a purgative effect, which was highly prejudicial in the exhausted condition of the patient; but was counteracted by its combination with tinct. opii, as the nature of the case required; and not only fulfilled this indication, but partially equalized and tranquilized the ner-

vous irritation of the system, and procured sleep during the greater part of the night. This was desirable, and always obtained by the exhibition of a large dose in the evening. Without this, the night was passed in extreme restlessness, anxiety and watchfulness.

By pursuing this practice, and dressing the wound twice every day, with a very light poultice, composed of a decoction of cinchona and flour, with a very thin piece of oiled cambric interposed, which facilitated its removal, all the gangrenous portions were removed; the offensive ichorous sanies and odour subsided; and the margin of the wound began to assume a healthy appearance and secrete a laudable pus.

While these things were effecting, the tinct. opii, from the frequent and large doses administered, induced constipation, which was obviated by occasionally combining with the cinchona a small quantity of rhubarb or sulphate of magnesia, so as to procure one or two alvine evacuations daily. Both these opposite states of the alimentary canal were thus counteracted through the whole progress of the disease.

The second part of the treatment is a subject of acknowledged difficulty, and one that has deservedly engaged the attention of the most distinguished practitioners both in Europe and the United States. Upon this practical point, of such importance both to the life of the patient and reputation of the surgeon, some diversity of sentiment exists; and as, in most instances of contrariety in medical opinion, "*veritas in medio*;"—one recommending to "cut the tumour freely off;"* another not to apply the knife until it acquire a very large size, "when small portions may be separated;"† another of still higher authority, to "puncture it with a lancet."‡

As this was the third patient to which I had been called, after I commenced business, a case of the most imminent danger that could well present itself, this hideous tumour, with all its terrific concomitant symptoms, placed me in a critical

* Mr. Charles Bell.

† Dr. Dorsey.

‡ Dr. Physick.

dilemma; my sensibilities being highly excited and interested for the recovery of my little patient, whose very aspect was sufficient to elicit the keenest sympathies.

After maturely deliberating upon the different plans proposed, comparing and weighing the propriety of their application and effects, I determined to remove the tumour. This was done in the following manner at several different times.

Near a third of it was pared off from its apex to the part embraced by the bone. No small increase of the nervous excitement of the system took place during the operation, and became so violent, when that quantity was removed, that I thought proper to discontinue it, although near as much was taken off as contemplated. He took immediately a large dose of tinct. opii, and the wound was dressed with a light bread and milk poultice, with a similar piece of cambric interposed as before. In thirty or forty minutes, he became somewhat tranquil and composed, though not disposed to sleep; took some nourishment, and his eyes and countenance indicated a natural vivacity and serenity, which they had not previously done, attended by an evident mitigation of symptoms. This was then attributed to the unusually large dose of the anodyne, but which was in reality produced principally by the hemorrhage. This was not sufficiently profuse to become prejudicial, and was uniformly salutary, as experience incontestibly proved for a number of succeeding days.

On the following day near another third was removed, accompanied by similar, though less violent nervous phenomena, and with the loss of a little more blood. The wound was dressed, and an opiate given as before, followed by a similar beneficial result. The third day almost all the original tumour was shaved off. This operation produced analogous effects—treatment as above. On the fourth day the remainder was taken off together with a portion of recently protruded brain, attended comparatively with little nervous agitation, but with some, though not an alarming increase of hemorrhage.

This death-like tumour having been disposed of, the little sufferer was rid of a load of oppression, inseparably connect-

ed with its presence, and there was an alleviation of his sufferings, beyond my most sanguine anticipations.

The brain still continued to force itself out, but with some abatement as to quantity or extent. I applied *nitras argenti* freely to its whole exposed surface, under the impression, that a sufficient quantity could be thus removed; and also to dispense with the use of the scalpel, which created the most serious apprehension and horror in the minds of his relatives, but certainly no pain to him. Nor did the caustic cause any nervous irritation. This organ, when in a healthy state, is completely destitute of sensibility;* these facts prove it to be equally so in that of inflammation. .

The caustic not only failed to accomplish the object proposed, but failed to afford the relief the knife did, as no hemorrhage attended its application, although it acted with great power upon the brain.

It is to be observed, that before it was made use of, compression was resorted to, with a view to counteract the disposition to protrusion, not to reduce the protruded portion; but was as insupportable as it had been previously to the use of the knife; and would, unquestionably have proved destructive, had it been applied and continued with only a moderate degree of force, but a short time—perhaps even in a few minutes.

As the hernia began to re-acquire magnitude, some of the symptoms which had entirely disappeared began to re-appear, and all assumed their former malignancy. The use of the knife, therefore, became indispensable; it was employed no less than six times more, and so timed and regulated, with regard to its application, as the exigency of the symptoms required.

An increase of hemorrhagy attended, and a slight reduction in the force of its pulsatory action followed each application; but the latter was neither instantaneous nor permanent, taking place in two or three hours, and evident at the first dressing. Afterward, the force of the action was increased, and

* John Bell.

gradually returned to, or approximated what it was before, yet on no occasion transcended that point. It is out of my power to state the whole amount of blood lost.

The bleeding always stopped without aid, with the exception of what occurred in two or three of the last operations, when it became more profuse, though not seriously alarming, and was promptly arrested by placing the side of the head in a horizontal position; by means of which a coagulum was soon formed that put a termination to it. But position itself, independent of this, had its influence in effecting it, yet it was astonishing how soon coagulation took place.

What was the cause of this? Was it protracted debility and exhaustion? Or an expenditure of the vital principle? Or any thing peculiar in the inflammation constituting this species of disease? The reason why it was important at this stage of things, to guard against too copious a flow of blood, is obvious.

The brain was pared off in thin pieces, and when cut down to the inferior or internal edge of the opening in the skull, at any one place, its separation appeared to afford more relief, than when cut down to, or near the superior or external edge; because the compression by the bone, which acted as a ligature upon the protrusion, was thereby to a certain extent obviated. This was done twice.

But the greatest relief arising from the operation, resulted from direct depletion, which reduced the morbid excitement of the blood vessels in the brain itself; and in a small degree, contributed to reduce the volume of the protuberance, and relax its base or circumference, that was closely and firmly embraced by the margin of the foramen. This relaxation was necessarily not very great, yet removed a proportionate share of compression.

Among the considerations at first, which determined me to separate the entire tumour, was this, that if it were even possible to reduce it, as the inflammation subsided, it did not appear that much of it would be a suitable substance for the inside of the cranium again; and if a cure were effected by nature, it must be separated, by the edge of the bone, compress-

ing and choking it so as to cause it to slough. This her powers would have fallen far short of under existing circumstances. No signal benefit was apprehended then, but on the contrary, disadvantage and danger, from the loss of blood.

My reasons for not cutting off all the tumour by one operation, were these, viz.—First, a profuse hemorrhage was anticipated, which might prove immediately fatal; secondly, a strong shock, or agitative impression communicated to the system, that might be equally so. But from the former, little inconvenience would probably have resulted, yet from the latter the most serious; as was manifest, by a separation of not even a third. The result, I think, would have been instant death. From the time I began to use the knife, until this period, was upward of twenty days, during the first part of which time, the pulse was weak, frequent, and occasionally intermittent; in the latter, it lost all tendency to intermit, was fuller, softer, and less frequent.

The protrusive motion of the hernia began evidently to abate; although there was still a perceptible continuation of it for several days; at the expiration of which the surface of the brain was elevated rather above that of the scalp. As it created none of the heaviness, stupor, and nervous irritation, it had previously done, it was judged proper not to touch it. Nor did it appear to be so much compressed, by the edge of the bone around the opening, and began to exhibit a more lively, healthy character.

During this time the method of dressing it was not changed. Shortly after the gangrenous portions had sloughed, healthy granulations sprung up pretty copiously around the margin of the wound; but the constant protrusion had given them and the detached scalp a retrograde direction, by pressing them as it were outward.

The incision made in the scalp with the scalpel, when connected with that made by the hoof, represented in some respect a tripod; and the wound, by reason of this in the soft parts, resembled imperfectly an oblique triangle, the base of which was formed by the latter. It was therefore determined to change the manner of dressing it.

Having prepared a roller of convenient length an inch and a half in width, and three conical cuneiform compresses with their apices rather more than an inch thick; the roller was carried several times obliquely round the head so as to form a large triangle exterior to that of the wound, and well secured at each place, where it crossed itself. This gave a foundation from which considerable auxiliary power could be applied when it was inconvenient or unnecessary to conduct the roller round the head, by securing it to that, at any convenient place, and then giving it the proper direction, and due degree of force.

The wound and triangular space formed by the roller, were covered with a plaster of ung. simplex, and over this, the compresses, with their thicker extremities applied as closely as possible to each side of the wound, not to injure the granulations, and secured by an assistant. The roller was then continued from one angle to another, and fastened at each; and round the head when requisite, overlapping itself every time, carried round the triangle half its width. It was applied with considerable force, until it came directly over the granulations, when it was relaxed; also over the surface of the brain still more, making scarce any pressure here; and finished by leaving a small space in the centre of the wound uncovered, except by the plaster.

This dressing had a three-fold effect. In the first place, it had a tendency to revert and concentrate the granulations, by drawing the divided yielding scalp toward a point from three directions. In the second, it gave the external soft parts, additional firmness and stability, which facilitated the closure, consolidation and cicatrization of the wound; thus, by the former and latter effects indirectly, and as inflammatory action abated, by the reductive pressure being gradually and equally increased over the surface of the brain, directly favoured its reduction. Though I believe it had but little direct agency in this. In the third, the inflammation and tendency to protrude, having almost subsided, it in a *very small degree*, counteracted the latter; but as this was nearly suspended, it neither required, nor would even now bear much counteracting power.

Had this dressing been used, prior to this period of the disease, it would undeniably have been productive of irreparable mischief, had even very moderate pressure been employed and continued; yet it had no small influence in closing the integuments. The first time it was applied too much force was exerted over the edge of the brain, which had nigh caused a convulsion in less than twenty minutes. The patient began some days before this to articulate, and now spoke intelligibly.

When the integuments had covered the brain, except a space in its middle, about an inch in diameter, and the hernia principally reduced, a profuse secretion or effusion of a peculiar matter took place; which will be presently noticed more particularly, accompanied by a speedy reduction of the remainder; one side of it having receded a small distance within the cranium. The wound presented rather a flat than convex appearance, was healed in a few days, except an opening retained by a tent, for the evacuation of any superfluous matter; the whole of the new organized parts had a beautiful envelopment, possessing no inconsiderable share of firmness and strength.

As soon as the hernia had receded the dressing was changed to that of a light compress, under which the thin plaster was still retained. Until this time the cinchona elix. vit. &c. were administered as circumstances required. His general health, appetite, and spirits, were much improved; he began to be entertained with various amusements, was able to sit up, although the paralysis of the opposite side was but little amended.

I am unable to state the quantity of brain lost, as permission was not granted to retain any of what was first taken off. This, from superstitious motives, was always immediately interred; but at length I was allowed to preserve a part. I have now in my possession, in a state of tolerable preservation, what was lost by the eighth and ninth operations, and which weighs ninety grains. A very inconsiderable portion was lost by the tenth, not larger than half a pea, and was a partially detached process, not separated with a

view to relieve any untoward symptoms, as these had anteriorly disappeared.

It has just been observed that when the brain was nearly reduced and enclosed by the integuments, a copious discharge of a peculiar matter was induced. This was manifestly from the vessels contiguous to, and embraced in the surface of the brain, which had sustained the injury or loss. It appeared to ooze from all the parts which has been affected; was of a whitish leaden hue, had somewhat the consistency of serum, and exhaled a remarkable though not disagreeable odour. What was the cause of this? It could not be the means of relaxation which caused the recession of the hernia, as this was almost accomplished prior to its appearance, and the inflammation evidently pretty much subsided. Was it because the vessels were taking on a new and peculiar action, to produce a homogeneous matter to supply the defect?

This oozing continued for three or four days, without any discoverable alteration as to quality or quantity, but afterward became daily less, had more of a whitish cast as it diminished, and did not fully subside until between the third and fourth week after it appeared. As it decreased there was a deposition or growth of cerebral-like matter upon the surface, from which the brain had been removed, and *apparently* in quantity proportionate to the loss this organ had sustained; or so much so that when restoration was effected, the cranium appeared as completely replenished with this new production, and as full of cerebral substance as before the accident. However, it is not to be understood that I believe this to be the case in *reality*, but in *appearance* it was such; as to the quantity formed, I apprehend to be somewhat less, though it may approach closely the original, and therefore not altogether equal it: as its real condition, can never be accurately ascertained, except by examination after the death of the individual.

Inspection of the brain, at this time, was almost precluded by the growth of the integuments, it was consequently impossible to examine its entire surface where renewing; but by introducing a probe between the former and the latter,

between which no adhesion existed, and elevating the integuments, a large portion of the brain could be distinctly seen; all which exhibited the phenomena of organization. A beautiful exhibition of nature's restorative powers in this important organ, said to be "*adytum animi*," the mind's abiding place.

But any thing like a new formed *dura mater* was not discovered; yet this, or something analogous to it may have been re-produced while the wound was kept open by the tent; and might, before this time, have been forming about the margin of the opening in the bone, as it could not be inspected at that point. Or if renewed, would its re-production be commensurate with the ossific process? Nature would scarce suspend her renovating process until a new membrane was produced, as well as new bone, a protection adapted to her exigency and the security of this organ, for which she had called forth and concentrated with so much economy her restorative energies, to reinstate its pristine form and utility.

We have the concurrent testimony of Mr. HILL and others, respecting the formation of new brain. His sentiments are in point and explicit, when he says "what was shaved off the brain did renew by fresh growth," and "for what we have already seen, it is renewed, in the same manner as the loss of substance in any other part," "these are not mere matters of conjecture, for the facts are certain," in which sentiments I fully concur.

In the twelfth week all discharges ceased, the tent was discontinued, and the aperture in a few days cicatrized. The patient was able to walk; although the paralysis of the side had greatly subsided, it yet continued, and for several months gradually declined, until no traces of it could be discovered. Ossification appears to be going on, and the opening in the skull will ultimately be supplied in great part, if not altogether, with a new but thin lamina of bone.

His mind is not in the least degree impaired, all the intellectual functions are performed with as much uniformity, harmony and energy, as before the accident. The boy was

at school when it transpired, and as soon as he recovered, resumed his scholastic exercises, manifesting his usual capacity and progress.

It may not be uninteresting to make some remarks on the nature and causes of this disease after this detail.

It seems, by reason of the pulsation, which characterizes those tumours, that PAREY and others, who lived about that time, considered them as aneurisms. What pathological error! What treatment! What destruction! We have been told, "that the disease frequently described by the term *Hernia Cerebri*, consists of a tumour, formed by coagulated blood, for an organized fungus could hardly be produced in so short a time, as that in which those tumours are usually formed; and that their formation seems to proceed from an injury done to a part of the brain by concussion or contusion, which has terminated in a diseased state of the vessels similar to what occurs in apoplexy."*

As we have a variety of those herniæ, which are the necessary consequences of diseased states of the blood vessels of the brain; they would all seem therefore to be "formed by coagulated blood" from ruptured vessels, the result of accident. Each one is unequivocally the effect of a diseased state of the vessels; but that they are all tumours, formed by coagulated blood, is a position involved in some obscurity, and one which I feel not altogether disposed to admit.

The states of vascular excitement in *hernia cerebri* and apoplexy, at the commencement, even from its premonitory symptoms, which not unfrequently occur, and indicate an incipient or weak state of inflammation and engorgment, appear not only to be dissimilar, but very different afterward in force, duration, and termination. The excitement is weak in the former at the beginning, but gradually acquires frequency and energy; it requires, on some occasions, several weeks to produce dissolution, or terminate in a crisis which may either be followed by death, or convalescence and recovery. This, in the latter, is at first stronger, shorter in continuance, and different in ter-

* Vide Mr. Abernethy on *Fungus Cerebri*.

mination; death or recovery occurring much sooner. But the diseased state of the vessels in *hernia cerebri*, said to be "similar to what occurs in apoplexy," is most conspicuous in the paroxysm, which, in that disease, usually terminates life.

The aggregate of symptoms in both, from the beginning to the ending of the convulsions or death, such as the turgid condition of the vessels of the head and face, the universal intumescence of the brain, the weak convulsive motions, sudden prostration or suspension of muscular power in the one, the less diffused intumescence, concentrated more at one point, but which probably affects the whole organ more or less; the sallow, cadaverous, collapsed visage, that I apprehend is always present, and strong spasmodic actions that characterize that of the other, amounting sometimes to opisthotonos, the striking inequality of pulsation, and very discrepant exhibitions of organic derangement, shown by dissections in each disease:* all when properly analyzed evince dissimilar states of arterial excitement at this time.

Hernia cerebri takes place, either when ulceration or gangrene is destroying, or has destroyed the dura mater, without any, or with much of the exterior soft parts being included in the injury. As the dura mater is acted upon by the edge of the bone, it may be destroyed by this, and the pulsation of the brain. But here the concurrent agency of more or less inflammation in this organ itself appears requisite; without which, a hernia, under any circumstances cannot be effected to any great extent, even after destruction of the dura mater, and consequently the natural support the brain receives from it is destroyed.

A diversity in the character of those herniæ evidently exists; because each possesses symptoms essentially distinct; an essential difference must therefore exist in the cause which excites, and the inflammatory action that constitutes them giving each one its own peculiarity. In one instance the *inflammation* is excited by concussion or contusion, complicated probably with extravasation at the same time; which, as it increases,

* Mr. C. Bell.

produces rupture of the vessels and effusion, as the tumour consists principally of blood in a state of coagulation.* In another, inflammation is excited by concussion or contusion, but with little or no evidence of extravasation; assumes a different grade of action, as no vessels of consequence are ruptured, and terminates in the formation of an abscess. The protrusion is a part of the inflamed brain forced out by the abscess forming, because under that, nothing but pus is discovered.† In a third, the tumour appears to be induced by the same causes in a greater or less degree; produces an organized fungus from the substance of the brain; or creates an ulcer in it, from which a fungous excrescence springs up either alone, preceded by, or connected with portions of brain.‡ In a fourth, the tumour is the result of an impression communicated, or perhaps only an additional impulse is given to the morbid action, existing in the blood vessels, by a caries and exfoliation of a part of the skull, probably attended at the same time by an ulceration of the dura mater from constitutional syphilitic contamination.§ What has extravasation, concussion, or contusion to do in this case? In a fifth, as in the case related, *it* seems to originate, principally from a lesion in the surface of the brain; the former causes having no manifest influence in its production. The hernia is a portion of the enlarged mass of brain; but in which, and the subjacent parts, the inflammation is more concentrated than in those more remote. This conclusion is deduced from the annexed considerations.

First. Because by the several applications of the knife, no indications of the anterior existence, or presence of coagulated blood, or this commixed with pus, or pus alone were discovered. Nothing of the kind was discharged between each operation; and nothing but fluid blood at the time, which soon coagulated, as already stated.

Secondly. The small quantity of blood discharged and deposited when coagulated in the lesion the brain received by

* Mr. Abernethy.

† Mr. Charles Bell.

‡ Dr. Dorsey.

§ Mr. Charles Bell.

the fragment of bone, if regarded as the cause, is by no means commensurate to the effect, the hernia; and which cannot be regarded as an effect of concussion or contusion; but simply that of a solution of continuity in the surface of the brain.

Thirdly. No conclusive evidence of contusion existed, either when the depressed bone was removed on the first appearance of the tumours, or by its separation; which embraced the parts most exposed to the blow. Not even specks of dark clotted blood at any time were observed under the pia mater.

Fourthly. The depression was most evident at the place where, by the hoof, the fractured portion of the skull was driven in; the edge of which made a clear incision in the dura mater and brain two or three lines in depth, and was as before observed, the greatest source of compression: it was therefore but little, if any contused, incised and compressed.

Fifthly. Rationality was restored almost as soon as the fragments were disposed of; which could not have been the case if the compression had been in part produced by, or much influenced by extravasation; because, that could not otherwise have been accomplished in so short a time.

As the protrusion, of whatever description it may be, is the effect of inflammation, it therefore becomes a substitute for greater oppression and protracts existence; because, long before this obtains its acme, death must be the consequence if the brain or fungus were not proportionately forced out, or if much mechanical power were applied to resist its increase. This is particularly manifested in the last mentioned variety, in which it assumes a more protracted character than in the others.

It commences also at the place which receives the injury, whence it probably disseminates itself through the whole of the cerebral volume, gradually augmenting the same, in proportion to its degree or violence; and which thereby acquires too much magnitude for the capacity of the cranium. The tumour being unaccompanied by the prominent symptoms of the former, is nothing but the redundant portion of the tumid viscus which the cranium cannot contain, relieves

a part of the compression from the violence of the inflammatory process, extends the period at which this would induce extravasation, effusion, or convulsion, and thereby becomes a substitute for a greater evil. Because either of these effects would, in all probability, prove directly fatal, unless the fluids, if considerable, were discharged externally from the tumour itself.

In the instance related, it would probably have induced a convulsion, which would have extinguished life, and this without any discharge from the cerebral vessels, unless it had taken place at the time: and if the inflammation were to produce a convulsion, unattended by extravasation, effusion, or exudation, we have, in this respect, analogous cases in hydrocephalus, sympathetic phrenitis, and apoplexy, which have resulted in death, as examinations afterward have evinced, when no such consequences existed; and in some instances showing little derangement whatever in the brain, its appendices, or ventricles.* Since morbid states of excitement in the vessels exist, and prove fatal in those instances, without such effects, by a parity of reasoning, we might have a diseased state of action, similar to them in this particular, and equally fatal in this disease.†

What influence, if any, idiosyncrasy or morbid impressions made upon the alimentary canal or otherwise, anterior to the reception of the wound, which might have affected the brain through the medium of sympathy, and induced predisposition, may have had in producing this peculiar state of excitement, I cannot take upon myself to determine. But the former, however effective it may have been, appears to be circumscribed in its influence, and can therefore have but little agency in producing the various shades of inflammation,

* Vide dissections of Lieutaud and Portal, on the former, and those of Morgagni on the two latter.

† The fluid, in hydrocephalus, I regard as a secretion or exhalation, the consequence of an inflammation *sui generis*, and which is generally of gastric origin. The vessels of the brain become affected through the medium of sympathy, and take on this peculiar perverted action and association, which *generally* terminates in the production of this fluid, improperly called water: an effect and not the cause.

which create the diversity of symptoms or effects that we are presented with in the history of this affection. Similarity in the cause, should produce similarity in the effect. Difference in the nature and extent of the exciting cause, when the patient is unaffected by predisposition or otherwise, must produce difference and peculiarity of effect: hence, in great part, the distinctions and phenomena which characterize those herniæ. But if predisposition had any influence, the properties of the morbid elements themselves, which constitute in this disease, as in some others, a predisposing cause, as well as those that form the immediate or sole causes of other diseases known by the qualifying expression *specific*, we know are arcana, shrouded in nature's mystic bosom, and remain for the ardour of genius and rays of science to explore and elucidate.

"Principia rerum occulta, effectus manifesti sunt."

These arguments and circumstances seem to establish this fact, that a peculiar protracted form of vascular excitement in a part, if not in the entire body of the brain, (not to be regarded as excited by the causes assigned by Mr. ABERNETHY, Mr. CHARLES BELL, and Dr. DORSEY,) takes place, attended by a correspondent enlargement and protrusion. But whether I have or have not succeeded in adducing the true cause of this, the fact of its existence is certain.

Before leaving this part of the subject, I will introduce one reflection. In those cases in which the inflammation results in the formation of abscesses, which are opened either by nature or art, and followed by recovery, is all the matter ultimately evacuated by the action of the brain? It appears not: in consequence of the position in which the head must be retained; the peculiar consistency and texture in the organization of this viscus; the impropriety and impracticability of applying pressure here, the abscesses being as it were, situated within the cranium, as to those in many other parts of the system. What disposition is made of it then? The natural reply is that by absorption; a circumstance not unworthy the attention of the physiologist; and one, with many others of a similar nature, which amounts to little less than

positive demonstration as to the existence of absorbents in this organ; a set of vessels not generally admitted by some physiologists; the development and evolutions of organized matter imply their existence and utility, as well in this as in any other member of the system.

I shall now offer a few desultory observations, which were intended in relation to some practical views to be found in the works above alluded to on this disease; and as they are the result of limited experience, they are advanced with some diffidence.

Dr. Dorsey, in his *Elements of Surgery*, has observed, "I will condemn without hesitation his, (Mr. C. Bell's,) proposal to cut off the tumour." "This, I conceive, could not answer any good purpose, and would probably be productive of very copious hemorrhagy, which, in the exhausted state of the patient, might prove fatal."

With all due deference to the character of our late ingenious countryman, for whom no one had a higher regard than myself, I conceive the proposition censured and objected to in this extract, to be correct, and an omission to adopt the practice proposed, incorrect, defective, and replete with danger in some cases, particularly in large, very projecting hernia of this description, wherein the perplexing symptoms, as heaviness, stupor, nausea, partial or complete delirium, convulsed action of the muscles of the face and other parts, eye-balls fixed, or squinting, grinding of the teeth, &c. arising from inflammation, tumefaction, and compression, are strongly marked, and which imperiously demand relief. To mitigate these symptoms, and thereby procure this relief of such vital importance to the patient under these circumstances, the removal of a part, or the tumour itself, becomes indispensable.

This can be done with equal facility and safety, and with more advantage by paring off thin portions from its apex to its basis, than by simply trimming off the former. Because, in addition to the benefit, in its full acceptance from depletion, if the knife be extended to the lower edge of the bone, (as it may with safety,) a greater degree of relaxation is procured by the removal of parts constricted by it. However

limited this relaxation may be, and short in its duration from the constant expulsive motion of the brain, it seemed to co-operate in procuring alleviation in the case related. Although the number of times this was performed was not sufficient to establish its extent, or what part it really had in this, being among the last applications of the knife, and as an increase in the flow of blood accompanied each, perhaps too much importance was affixed to it. But be this as it may, the motions of elevation and depression of the brain should be preserved as free and as little impeded as the nature of the case will permit, and for reasons which will be subsequently noticed.

An alleviation of those oppressive symptoms inseparably connected with the tumour on some occasions, it is believed, will follow a separation of a part, or that of itself, which will certainly answer a "good purpose." With regard to "a very copious hemorrhagy, which, in the exhausted state of the patient, might prove fatal," succeeding the operation. This is not much to be apprehended or dreaded, particularly from the first operations. The hemorrhagy, instead of being dangerous or injurious, will be found to afford *relief*; and if it were to present any alarming symptoms from its copiousness, might probably be easily arrested by availing ourselves of the advantage of position, as suggested in the former part of this paper.

"No bad consequences follow cutting off the protrusion, but on the contrary, the patient seemed easier afterward;" and "which may be done without the patient's knowledge, as the parts are insensible;"*—precisely what occurred under my own observation.

But I can readily conceive a case of this affection, in which I would freely acquiesce with him in relation to the impropriety of separating the tumour, viz. a small hernia, unaccompanied by a number of the above aggravated symptoms; not prominent or projecting to any great extent, nor much disposed to acquire size; and its body exhibiting no indication of injury

* Vide Mr. Hill's Surgical Cases.

from contusion, stricture by the margin of the opening in the skull, or general incipient disorganization. Under such circumstances as these, every judicious surgeon would probably, without much hesitation, adopt his practice to this particular condition.

But if, in this comparatively mild case, the inflammation was to suffer an increase of excitement; continue to retain this, or acquire aggravation; if on the accession of it, or afterward, no portions of the tumour had been removed; the symptoms finally evincing the formation of an abscess, and it was determined to puncture it, as suggested by Dr. PHYSICK; would it not be preferable to precede the use of the lancet by that of the scalpel? From suggestions before introduced with that of compression by the edge of the bone upon the protrusion, which would partially compress the orifice on withdrawing the lancet, it seems this preparatory step would be proper, because, if the knife did not reach the cavity of the abscess, it would weaken its external side, and in some measure thereby obviate those difficulties and facilitate its evacuation.

Mr. Hill, (whose success has not been surpassed by that of any other writer,) in a case, in which the inflammation was truly phlegmonous, and terminated in an abscess, says, "I was obliged to shave away the tumour and push a lancet deep into its root." The necessity of its having to be shaved away is plain, as the matter without it would not be sufficiently evacuated; because this "root" as he expresses it, was the constricted, or rather the internal constricted part of the protrusion, under which the pus was placed, and the most prominent obstacle to its discharge.

In Dr. Dorsey's successful case from vomiting, "a copious flow of blood took place." "From this time," he observes, "I had the pleasure to find the tumour gradually subsiding." An immediate convalescence and speedy recovery followed this profuse hemorrhage.—A positive confirmation, as to the correctness of the principle I advocate, *depletion*; although never intended to bear this construction by him. Here nature executed what was the province of art—the vessels were opened, "a copious flow of blood" succeeded from the tumour, which

affected it and the subjacent parts;—probably the whole brain itself, and thereby reduced and subdued the inflammation. He notices no discharge of pus; nothing but blood. The state of inflammatory action in this case bears a close relationship to that of the one which came under my care in several particulars, except that its symptoms are of a much milder character.

Mr. CHARLES BELL observes, “the tumour should be cut freely off; and after this there should be slight and equable pressure, and as I should more fully express it, pressure is absolutely necessary.”

The first part of this extract from the publications of this enlightened surgeon, which have deservedly procured him so much eclat, is replete with practical truth. Although his phrase, “cut freely off,” appears to require some qualification, as we might draw the inference from it, that he intended the tumour to be removed, by one or two steady strokes of the scalpel, applied near the side of the opening to its base. This, I apprehend, would be attended with much hazard, particularly if it were large, and for reasons already assigned; but the necessity and propriety of its free removal in part, and altogether, in many instances which may present themselves, are indisputable.

The application of this equable pressure, however light it may be applied at first, requires much discrimination and precaution, and is wholly inadmissible in some cases, as in the one related, until the inflammation has nearly or altogether subsided, the continued expulsion of brain being the effect of this; as long, therefore, as it existed in any great degree, its application would have been attended with mischievous or fatal consequences. Although, if its separation is followed by a speedy and obvious reduction of vascular excitement, it may be applied; but if not, and the brain still continues *forcibly* to protrude, the word *after*, used by him, as to its application, should have reference to the period at which this has in great measure or entirely subsided. Because, otherwise, the continued protruding action of the hernia, and counteracting pressure, in conjunction, are productive of disturbance in the ner-

vous system and intellectual faculties. I think with him that it ought not to be resorted to for the purpose of compressing and reducing it within the cranium.

But, as pressure, if judiciously applied, and at a proper time, expedites the growth and consolidation of the exterior soft parts to a certain degree, it thereby becomes indirectly safe, co-effective, counteracting, and reductive. As vascular excitement subsides, the brain's expulsive action does also; the hernia, therefore, ceases to increase, and soon begins gradually to recede, as in Dr. Dorsey's case, after the hemorrhage. It has been shown, while the expulsion of brain continues to any great extent, and consequently an increase of the tumour, pressure is inadmissible; and as it can have nothing to do in reducing morbid action in it, and the body of the brain, it seems, therefore, incorrect to assign a large share of utility to it, when used directly as a counter-agent.

It should not be applied with too much force, but in such a manner as to operate *very little* upon the motions of the brain: these should be maintained as uniform and unmolested as circumstances will permit; because, if not, the faculties of the mind and order of the nervous system become disturbed, obscurity or derangement of intellectual operation, and spasmodic action immediately follow. In those cases wherein much brain has been lost, while it is renewing, I apprehend, just sufficient pressure exerted and continued to partially interrupt its energy of motion, during this process, though not to produce those immediate unpleasant effects, would be still productive of prejudicial consequences. Because it would, in all probability, after recovery, retain in some degree, this imperfect state of action, which might produce a consequent weakness, obscurity, or derangement, in the powers of the mind—an important consideration, when we contemplate the high functions this organ is destined to perform in our physical and intellectual economy. In a small hernia, where none of the scalp has been destroyed, and a favourable disposition to restoration exists, pressure, it seems, would have very slender claims to usefulness—it appears unnecessary.

Notwithstanding my prepossession in favour of many of

Mr. Bell's opinions and accuracy of judgment, I am somewhat apprehensive he has prematurely disposed of this "equable pressure,—absolutely necessary," with too much liberality for the interests of his patients; and it may really have been in some respects accessory to the fatal termination of some of his cases, as he appears to have recorded no one of recovery under his care. But, if my memory serves me correctly, the practical views upon these points delivered by Professor GIBSON, in his lectures, indicate a degree of judgment and perspicuity, much more worthy of our attention and imitation than what has just been recited, when he said, "if the tumour become very large, pare it off gently, and apply a light dressing," instead of pressure at first after a part or the whole of it is removed.

Mr. ABERNETHY having proposed nearly a similar practice, says, "if the tumour still continues to increase, the obvious method of relief here, appears to be, to enlarge the opening in the bone, in proportion to the extent and increase of the tumour." The proposition in this quotation appears to me to be a speculative one, which will probably never be reduced to practice by any intelligent surgeon; nor had been by himself, as is evident from his own statement. Who has ever performed this precarious operation? Who would, in the exhausted state in which every patient must necessarily be placed under these circumstances? Or could any one bear the shock, irritation, and inflammation, succeeding the application of the trepan, superadded to the inflammation already existing in a system thus reduced? It is scarcely possible. Admit that he can, and what will be the effect? Will it not rather favour and increase the protrusion, without diminishing the vascular excitement upon which the disease depends? And will it not rather increase this, and, thereby, further augment the difficulty and danger? Of two evils, let us select the smaller. This operation, it seems, would be the greater.

Let us, having removed the tumour, and it continues to protrude and increase, shave off gently thin portions from its surface as often as necessary, and let the blood flow as freely as the state of the system will justify: thus, by *depletion*, al-

ter and reduce the morbid action in the blood-vessels of the brain; evacuate any extravasated blood or pus which may be concealed within; and thereby attempt to supersede the necessity of resorting to that extremely hazardous alternative. The former cannot be done without the patient experiencing great, probably insupportable pain; *the latter can, without any.*

But it is not to be understood that I conceived depletion, as recommended in this communication, will be absolutely necessary in every case, or be productive of the same salutary effects in every species of this "dangerous affection," which in general "terminates speedily in death," as in this form of it, that I have imperfectly attempted to describe; and that each case of it may offer symptoms, exacting a modification, or different treatment in some respects; the intelligent surgeon prescribes to meet the urgency of the symptoms before him, instead of prescribing for the mere name of a disease.

It would be an insult to the understanding, to dwell upon those pernicious apparatuses invented by the ancients, under which groaning, convulsed nature often expired, fabricated of silver, lead, &c. designed to prevent, compress, and reduce those herniæ, and from the principle upon which they were used, must have inevitably proved destructive to a large number of the unfortunate to whom they were applied; they teach us what lamentable pathological errors their devisers must have entertained relative to the nature of this affection. But the light shed from the advancement of our science, has long since dispelled some of the darkness which enveloped it then, taught us a more correct pathology, and consigned those absurd contrivances to merited neglect.*

* It has now been three years since the above remarks were written, during which time the boy has had good general health. No disturbance has been observed in his mental faculties. A space remains, a little larger in diameter than that of a twenty-five cent piece, in the centre of the cicatrix, over which ossification has not extended.

ART. II. *Thoughts on the Origin of Fever.* By J. L. MARTIN,
M. D.

“The cure of diseases is chiefly and almost unavoidably founded on a knowledge of their proximate causes.”—CULLEN.

IN the whole circle of medical science, there is confessedly no subject of greater importance than fever; whether we regard the frequency of its occurrence, the mystery in which its causes and nature have so long been involved, or the uncertainty of its treatment. It has been calculated that more than one-half of the deaths among mankind proceed from this form of disease. What, in fact, are those awful pestilences, which from time to time depopulate whole countries, appearing to select the fairest portions of the globe as the chief theatres of their devastating ravages, but fevers, differing in their causes, types, and degrees of violence?

Attracted by the vast importance of the inquiry, the attention of the medical world, from the earliest dawn of the science, has been directed to the investigation of the causes, nature, and treatment of fever, with what success let observation and experience determine. Speculation in vain attempted to pierce through the thick gloom that enveloped the subject, and if at long and distant intervals, some faint gleams of light darted across the horizon, they were soon obscured by the mists of prejudice and error. Numerous indeed have been the attempts to explain the nature of fever, and to elucidate the *modus operandi* of the various agents by which it is excited, but of all the hypotheses so confidently broached at different times, how few have preserved more than a transient and ephemeral existence. Nor has the treatment of fever been established on much more durable principles; at no two epochs of the medical art has it been similar; the most opposite and incompatible plans have been proposed and adopted, and the practice is even now far from being settled. The course of my reading and observation, however limited, has convinced me that the treatment of the more violent degrees of fever, is peculiar-

ly characterized by uncertainty and doubt. If we examine into the cause of this want of a fixed and comparatively certain practice in fevers, we shall be induced to ascribe it to our ignorance of their pathology. Casting our eyes over the formidable list of diseases to which the human body is liable, it will appear generally, that in proportion to the correctness and accuracy of our knowledge of the nature of an affection, has been the success attendant upon its treatment. In proof of this assertion, we need but refer to the cases comprised in the order phlegmasiæ, the pathology of which, with the exception of a few, is well understood, and the treatment attended with correspondent success. The practice here, being based upon just principles, and established by extensive experience, is placed in a great degree above the ever-varying impulses of fashion and opinion. An accurate knowledge of the affections which come within its province, is, indeed, one of the chief sources of the pre-eminence of surgery over physic. When the pathology of all the various diseases which compose the nosological code, shall have been correctly ascertained, then and not till then will medicine attain its utmost point of perfection. Then will it cast off entirely the degrading garb of empiricism, and of undisputed right assume the dignity of a science, for its processes and results will become in a great measure the subjects of accurate calculation.

Having made these remarks upon the importance of ascertaining the pathology of diseases generally, we shall make a few observations upon what appears to be the chief cause which has hitherto retarded our advancement in knowledge of so interesting a character as it regards the particular case under consideration.

Until lately, the attention of investigators into the nature of the febrile affections, has been confined almost exclusively to mere abstractions. Considering the more general forms of fever, as arising uniformly in some morbid aberration of the forces of vitality, a principle which they regarded as an immaterial essence distinct from the body in which its effects are displayed, they have rarely extended their observation to the sensible changes which take place in the material

structure of the animal frame. Their views, however, were false, a striking proof of which is, that they never lead to any correct or positive results.

Vitality is not in itself a principle or being, distinct from the system with which it is united, but is the result of organization, and is even variously modified in the same body, by difference of structure. Life is, in fact, a mere personification of the totality of the functions of an organized body. These functions, (the impaired or disordered conditions of which constitutes disease,) being modes of action dependent upon the peculiar arrangement and construction of the different parts of the system, can only be affected by causes which operate upon the material organization of the body. We should, therefore, in our inquiries into the nature of disease, transfer our contemplation from vague abstractions, to what is substantial and obvious to the senses. It is this rational mode of investigation, which has, of late years, thrown so much light on medical science, and which is daily productive of the most important results. To the zeal and perseverance of the cultivators of morbid anatomy of the French school, is the medical world chiefly indebted for the great improvements to which we have just alluded.

Viewing disease as almost uniformly dependent upon organic lesions, they have prosecuted examinations after death to a hitherto unparalleled extent, and have thereby established the pathology of numerous affections, whose nature had previously been hid in obscurity. They have extended their observations to fever also, and shed a great deal of light on the long agitated question of its nature. The lead in these inquiries has been taken by the celebrated BROUSSAIS, whose doctrines are at present exciting such universal interest in the medical world. He maintains that fever is uniformly dependent upon local irritation or inflammation, and denies the existence of the idiopathic form of the disease. What are usually considered as general or essential fevers, he declares to consist simply in irritation or inflammation of the mucous lining of the stomach or upper portion of the intestinal canal,

constituting gastritis and enteritis, or a complication of both, gastro-enteritis. Long, however, before BROUSSAIS promulgated his opinions to the world, very similar views were entertained and publicly taught by CHAPMAN, in the University of Pennsylvania, as may be abundantly testified by the numerous classes who have attended his valuable lectures in former years. A concise and very lucid abstract of Professor Chapman's views on this subject, is to be found in the first volume of his *Therapeutics*.

The usual nosological division of fevers, and that which has received almost universal acceptation, is into idiopathic and symptomatic, or those depending upon some local disease, and those independent of any topical affection. That all fevers are of a secondary and symptomatic character, and that therefore there is no foundation for this distinction, it shall be my attempt in this essay to show.

The human system is composed of many parts differently constituted, each of which, though possessing a distinct function, concurs with the rest, in the grand object of the preservation of the whole. All parts of the body derive from the same sources, the energy by which they act, and the materials from which they draw their support. There is but one cerebral apparatus, from which every portion of the system is furnished with nerves, but one vascular system which supplies the whole with the vital fluid. No part of the body, therefore, is isolated from, or independent of the rest, and this mutual union and dependance establishes throughout a most intimate association. It is owing to this close connexion and unity of ultimate object, that the functions of no part can be suspended or deranged, without the injury being felt by the system at large. Some parts of the body are, however, more intimately linked with each other than with the rest of the system, and this latter connection has been termed particular sympathy, to distinguish it from the former, or general sympathy. Every agent capable of impairing or disturbing the functions of the system, is termed an irritant, and its action irritation, which can rarely subsist long without produc-

ing a more permanent disorder, inflammation, of which, indeed, it constitutes the incipient step. Whenever then any part becomes irritated or inflamed, the morbid phenomena are not confined to it, but by sympathy are extended to the general system, which suffers in direct proportion to the violence and extent of the local affection, and the importance of the organ affected. The peculiarities of the general disorder depend also in a great measure upon the particular sympathies and functions of the diseased organ. This constitutional affection constitutes what is termed fever, and is entirely of a secondary or sympathetic character, being uniformly the result of local irritation or inflammation.

It follows, from what has been said, that in the progress of fever, all parts of the system must become more or less involved, and so much is this the case, that the local affection has been entirely lost sight of, while absorbed in the contemplation of its extensive consequences. Of the various systems however, which are implicated, there is one, which although hitherto surprisingly overlooked in discussions upon the theory of fever, certainly plays a most conspicuous part. We allude to the capillaries, for an accurate knowledge of which the world is chiefly indebted to the researches of the ingenious and highly gifted BICHAT. Although the investigation of this point, does not strictly come within the limits of the object proposed in this essay, we trust a few observations on the subject will not be deemed altogether irrelevant. "To the capillary system," in the language of an eloquent teacher, "are confided the high offices of secretion, nutrition, exhalation, the evolution of animal temperature," &c. We shall find, that in fever it is these functions which are particularly affected, and it is their derangement which constitute the most important and essential symptoms of the disease. Thus the secretions are diminished, totally suppressed, or variously vitiated, nutrition is imperfectly performed, or entirely suspended, as is evinced by the rapid emaciation which takes place, and the temperature of the body, generally above the natural standard, undergoes an infinite variety of changes. We may then, I think, fairly infer that it is in the capillaries

fever is chiefly seated, and mainly expends itself, considering the local disorder however, as the proximate cause.

Whether the morbid action in these vessels ever becomes so inveterate as to assume an independence of the topical affection, we are not prepared to determine. It is indeed opposed to my general train of reasoning, although the arguments adduced in favour of the position are of a very powerful nature.*

Commencing first with the external parts of the body, those which are exposed to our view, we find that whenever irritated or inflamed, the general system sympathizes, and is affected with all the phenomena of fever. Besides the usual precursors, there is heat of the skin, increased frequency and force of the pulse, thirst, in short, all the symptoms usually expressive of febrile agitation.

Do we not see this every day strikingly exemplified in wounds and other external injuries? It were in vain here to deny the inseparable dependence of the constitutional upon the local affection; it is too evident to admit of doubt.

The fever produced is not in itself an independent and distinct disease; it is merely the mode in which the constitution sympathizes with the injured part. So uniformly do these febrile symptoms attend upon local inflammation, that in all surgical treatises they are described as effects of that morbid process, and arranged into correspondent stages.

Extending our observations to the internal parts of the body, which lie concealed from our view, we shall find that whenever they suffer from irritation or inflammation, the same state of things results.

The local disorder is sympathetically extended to the general system, which is thrown into a state of agitation or disturbance, and fever in its most unquestionable shape results. The constitutional affection in these cases is generally of a very violent character, owing to the great and indispen-

* It is hoped that the public will soon be gratified with a work on this highly interesting subject, from the pen of Professor Chapman; with whom these novel views originated, in which his peculiar opinions will be developed in a full and comprehensive manner.

sable importance of the internal organs generally, in the animal economy. What for example can be more severe or strongly marked, than the fever accompanying inflammation of the lungs or its envelopes? All the diseases indeed of the order phlegmasia, are attended by very decided febrile symptoms, which are incontrovertibly dependent upon the local inflammation for their origin and continuance.

In all these cases the same general phenomena indicative of fever are presented, although in each there are striking differences, arising from the peculiar sympathies and functions of the organ inflamed.

Thus, in the cases just cited of pleurisy and pneumonia, besides the strong and decided febrile symptoms by which they are uniformly accompanied, there is local pain, great disturbance of the respiration, &c. by which the particular nature of the affections is easily recognized. It then appears that whenever local irritation or inflammation exists, for they are both the same, as it regards their effects upon the system at least, fever of a character more or less decided always supervenes.

Comparing now those cases termed idiopathic, with those obviously of a symptomatic character, we shall find that in their general features there is a strong resemblance. Indeed, the points of dissimilarity between the two opposite classes are scarcely stronger than those subsisting among the individuals of the same class, and most of the causes, symptoms and curative measures, are common to them all. The peculiarities which distinguish the idiopathic fevers so called, are like those of the phlegmasia, entirely ascribable to the particular functions and sympathies of the organs primarily affected. The same cause, owing to a difference of predisposition or other circumstances, will in one case produce inflammation of the lungs, in a second inflammation of the bowels, and in a third, what is denominated idiopathic fever. In all these cases, the general characteristics of fever will be presented, and their several differences and peculiarities are certainly not greater than might be looked for, from the different habitues,

if we may so express ourselves, of the various organs primarily affected. Now, is it not independent of every other consideration, highly probable, that the same cause in these different cases acts in an identical manner, since the general effects which it produces are so similar. To doubt this, would be to display an ignorance of the general economy of nature, which, to use the philosophic language of Bichat, unites simplicity of cause with multiplicity of effect.

We shall now take a general survey of the causes, symptoms, treatment, and examinations after death in fevers, and ascertain what support they lend to the views adopted in this essay. For the sake of method and perspicuity, we shall treat of these sources of evidence in successive order, and our limits not allowing us to enter much into details, we shall confine ourselves as much as possible to remarks of a general nature.

Causes.—The causes of disease, as we have attempted to show in a preceding part of this essay, act uniformly upon the material organization of the animal frame. The most frequent sources of fever are morbid impregnations of the atmosphere of a miasmatic or contagious character, deleterious ingesta, the extremes and sudden vicissitudes of temperature, the habits of life which occasion an accumulation of excitement in the central portions of the system, metastasis of inflammation, &c. A little consideration will perhaps convince us that these agents all operate by producing a local determination to different portions of the system. It is evident from the nature of things that they cannot be applied to all parts simultaneously, nor is every portion of the system equally susceptible to the impression of these various causes. The surfaces to which they are immediately applied suffer, or their impression is extended to other parts of the body, which may be at the time in a state of greater predisposition. As it regards improper ingesta, it is obvious that they produce their primary effects upon the internal surface of the alimentary canal and the stomach in particular. Upon so evident a truth, it cannot be necessary to expatiate.

The *modus operandi* of the deleterious impregnations of the atmosphere, in the production of fever, of which they form unquestionably one of the most prolific sources, is very similar. They differ chiefly in their greater tenuity, which renders them imperceptible to the senses. Being inhaled with the breath, it is obvious that the only surfaces to which they can be applied, are the mucous linings of the digestive tube and pulmonary apparatus. By some, indeed, it is supposed, that the olfactory nerves are the avenues, by which their morbid impressions enter the system, but this is highly improbable, since these nerves being appropriated to a peculiar sense, can be affected by the particular objects only of that sense. Neither is it probable that the lungs are the subjects of the original impression of these morbid agents, since the diseases which they induce, never commence with the symptoms of pulmonary irritation, whereas the application of a morbid agent to any susceptible surface, is always followed by the phenomena of local irritation in that part. Upon the whole, we are led to the conclusion, in concurrence with the views of some of the later pathologists, that it is upon the mucous surface of the alimentary canal and stomach in particular, that the primary impression of deleterious impregnations of the atmosphere are uniformly made. As it regards the miasmatic exhalations, at least, there can be little doubt of the correctness of this position. The uniform precurrence and predominance of gastric symptoms, in the fevers produced by them, the measures which prove most serviceable as prophylactics, together with a variety of other circumstances, all tend to the confirmation of the opinion. The same observation is applicable, with due limitations, to the operation of contagious effluvia. Even in genuine typhus fever a case undoubtedly produced by contagion, the primary impression of the morbid agent is made upon the stomach, although the disease has in all probability its chief seat in the brain. The contagious particles may resemble some of the purer of the narcotic poisons, which upon being conveyed into the stomach, confine their impression to the nerves of that organ, by which it is transmitted to the brain where their effects are chiefly displayed.

By Broussais, however, typhus fever is considered a case of gastric or enteric inflammation, in which the sympathies of the cerebral organs are very strongly excited, and the nervous symptoms thereby rendered predominant. Whichever of these views are adopted, the local nature of typhus fever is equally supported, and this is the point we wish more particularly to establish. The *modus operandi* of extremes of temperature, in the production of fever, differs in no essential circumstance, from that in which they occasion fever generally. By a consent of parts, their impression is extended to some one of the internal organs, which thus becomes the primary seat of the chain of diseased action. There is always some particular organ to which their action is determined, and which becomes a central point whence morbid effects are radiated. Cold most usually diminishes the action of the skin, which diminution is quickly followed by an exaltation of action in some other part, and this augmentation, if continued, soon becomes permanent and degenerates into disease. The lungs, from their functions being to a certain extent identical with, and supplemental to those of the skin, most usually experience this reflected impression. Hence inflammation of the pulmonary organs, in some form, is the most frequent consequence of the application of cold, and hence also the peculiar advantage derived from the judicious administration of the diaphoretic articles, in pulmonary affections. Cold will, however, occasionally induce the fevers under consideration, and its intense and continued application is very apt to produce a low congestive form of fever, from the vast accumulation of blood in the internal organs and brain especially. Hence the prevalence of low, typhoid fevers, among the poorer classes of people, in the intensely cold weather of the winter season.

The influence of heat, on the contrary, appears to have a particular determination to the alimentary canal, which is peculiarly subject to derangements of various kinds in warm weather. Witness, in proof of this, the frequent occurrence of gastric disorder, dysentery, diarrhœa, cholera, &c. in the summer season. If fevers are more abundant at a later pe-

riod, it is owing to the combined influence of heat and miasmatic exhalations, proceeding from the decay of vegetable matter, so abundant in autumn. In hot climates the digestive apparatus is peculiarly disposed to derangement, and there occur few diseases in which it is not more or less involved. Heat and cold will necessarily produce their peculiar effects in a more prompt and decided manner, when applied in quick succession or rapid alternation, inasmuch as the system is under such circumstances altogether unprepared for resistance.

The habits of life which occasion an undue accumulation of excitement in the central portions of the system, should be regarded rather as predisposing causes, which render the system more susceptible to the impressions of the exciting ones. Thus a sedentary life which prevents a due share of action from being performed by the organs of locomotion, is very apt to excite an obscure, chronic inflammation of the stomach, constituting dyspepsia, and when by the application of an exciting cause, a more violent inflammation is kindled up, the case would be denominated an idiopathic fever.

Observations on the *modus operandi* of the causes of fever might be multiplied to a much greater extent, but it appears to me unnecessary to enter more into details. What has been already said is sufficient, in my mind, to show that there is always some local impression made directly or indirectly upon some part or organ, with which the general system becomes sympathetically affected.

Symptoms.—A consideration of the symptoms of fevers, most incontestibly proves that there is always some organ which is primarily and chiefly affected, and which forms the main and moving spring of the complicated actions of disease.

These affections have always been arranged into two grand classes, which, although they have received numerous appellations, are generally designated by the terms typhoid and inflammatory, the latter implying that the actions of the system are above the natural standard, the former that they are below that mean. Of these two characters there is a great variety of shades mingling imperceptibly with each other.

Indeed the same case may assume these different aspects in its progress. Thus fever is frequently inflammatory in its commencement, and becomes typhoid towards its termination. These modifications of the phenomena of fevers, are most satisfactorily explained upon the doctrine of their origin in local inflammation. The typhoid character may, in our opinion, proceed from two sources. It may arise from original or secondary inflammation of the brain or its membranes, impeding the cerebral function so indispensable to the performance of the various actions of life. This case is readily distinguished by the great disturbance of the mental faculties, and the predominance of what are termed nervous symptoms. An example of this kind is furnished by pure typhus maligna, as well as by the remoter effects of the action of some of the narcotic poisons. The typhoid aspect may also proceed from the great violence of the impression of the morbid agent upon the stomach, by which the powers of the system are at once prostrated and a perfect reaction prevented from taking place. Or where the case has been inflammatory in the commencement, it may be owing to the gradual impairment of the forces of the system, by the continuance and increasing intensity of the gastric inflammation. These two varieties are known by the universal prostration suddenly or gradually induced, in which the cerebral organs appear to suffer only in common with the rest of the system. With regard to the more numerous class of fevers, viz. the inflammatory, so analogous are their symptoms to those of inflammation generally, that they have received their appellation from this resemblance. Who does not recognize the phenomena of inflammation, in the precursory symptoms, the great heat of the skin, the ardent thirst, the redness of the tongue and eyes, the increased frequency and force of the pulse, the appearance of the blood, the periodical remissions and exacerbations, the critical discharges, &c. There is also in these fevers almost uniformly, a great predominance of gastric symptoms which usher in the disease and accompany it throughout its subsequent progress. Thus we have anorexia, nausea, frequent vomiting, redness and impaired secre-

tion of the tongue and fauces, and if the inflammation be very violent and acute, great pain and a burning heat in the stomach, tenderness on pressure of the epigastric region, &c. The case of yellow fever lends a strong support to the views herein adopted. This disease has been demonstrated to consist in a very violent inflammation of the stomach and upper portion of the alimentary canal, and should therefore undoubtedly be ranked among the phlegmasiæ. The milder forms resemble very strongly the severer cases of remittent and bilious fever, and so great is the analogy, that they are supposed by many to be but different grades of the same disease. Yellow fever differs, in all probability, chiefly in the greater violence of its symptoms, and frequently, indeed, changes into the form of remittent, bilious, and even intermittent fever, according to the reports of some of the most respectable writers on the disease. The latter diseases also occasionally assume so aggravated a character as to imitate yellow fever very strongly, and have under such circumstances received the expressive appellation of malignant. Here then we are presented with a case, conceded to be an inflammation of the stomach, which, in its mildest grades, puts on the garb of the various forms of ordinary fever, and is indeed convertible into them. A fair inference from these facts is, that inflammation of the stomach is at least capable of producing all the phenomena of these fevers.

With regard to genuine typhus fever, the symptoms presented by it, are, as before observed, decidedly indicative of cerebral inflammation, and resemble strongly some of the remoter effects of injuries of the head. It is obvious that inflammation of so important an organ as the brain, must necessarily be followed by great irregularity and diminution of many of the functions of the animal system. Accordingly, we find the pulse very slow and intermitting, or frequent, small, and tremulous, there is great languor, dejection of spirits, and depression of muscular strength, the eyes appear full, heavy, and suffused, the organs of sense are variously disordered, there is great disturbance of the nervous system

generally, and above all, the intellectual faculties are much deranged. A contemplation of the symptoms of fever must convince us, therefore, that there is always some organ chiefly and primarily affected, with which the general system becomes secondarily involved.

Treatment.—Before proceeding to the consideration of this division of the subject, it is necessary to premise, that the utility of all the various measures employed, is not universally admitted, and the *modus operandi* of many of them unknown, or but darkly guessed at. We shall therefore confine these remarks chiefly to remedies of established character, those which are unquestionably of benefit when judiciously administered in fever. Of all the curative measures employed, none has enjoyed a character so ancient and exalted as blood-letting. In many cases it is considered the main resource, the sheet-anchor, and in the inflammatory fevers at least, it is unquestionably such. No remedy is in these cases productive of such immediate, decisive, and permanent benefit, and its loss would be a deficiency in the system of treatment which nothing could supply. Even in the early stages of the typhoid fevers, its utility is asserted by the highest authority of the present day. The eminently beneficial effects derived from blood-letting in fevers, certainly affords a strong presumption in favour of their origin in inflammation. If there be not some organic lesion in fever, in which the blood-vessels of the part are essentially concerned, it is impossible to conceive how the detraction of a small portion of the circulating fluid should be followed by such important advantages. That there are some cases in which venesection cannot be employed without hazard, is not disputed. Examples of this kind are furnished by some of the more malignant cases of yellow and typhus fever. In these cases so violent has been the impression of the morbid agent, that the blood is, as it were; chained in the inflamed organ, and isolated from the general circulation. It is therefore beyond the reach of general bleeding, which merely exhausts the powers of the system, without producing any benefi-

cial effect upon the disease. These objections, however, do not apply to topical depletion from the immediate vicinity of the local disease which relieves the inflamed vessels, without much influencing the general circulation. Hence local bleeding may be used with advantage in all states and stages of fever, and in cases just mentioned, as constituting exceptions to the general efficacy of venesection, is employed with peculiar advantage. It might be naturally presumed, if the view here taken of the *modus agendi* of the more numerous causes of fever, be correct, that emetics early prescribed would be attended with benefit, and the presumption is rendered still stronger, by the sometimes successful efforts of nature to relieve herself, by spontaneous vomiting. Accordingly we find, that when administered in the incipient stage, before the cause has had time to make a permanent impression, an emetic frequently cuts short the disease at once, or impresses upon it at least, a more mild and tractable character. Even where slight inflammation has already been established, their effects may still be beneficial, since the removal of the cause is one of the most effectual means of relieving early inflammation. Besides, although emetics in their operation unquestionably make a powerful irritation upon the stomach, and occasion a recession of blood from the surface to the centre, yet when reaction takes place, a contrary direction is given to the current of the circulation, as is manifested by the universal glow, the increased perspiration, and the augmentation of the secretions generally.

By Broussais, however, although the occasional benefit of emetics is admitted, yet they are condemned on theoretical views, as hazardous and precarious remedies, and hence are entirely excluded from his code of treatment. This pathologist considering, as before observed, fever to consist in inflammation of the mucous coat of the stomach and intestines, confines his treatment almost exclusively to the application of leeches to the abdomen, and the free use of bland, soothing beverages, and he appeals to the success of his practice for the truth of his theory. What are the merits of this plan, we have not

had sufficient opportunities to determine; it has, however, very numerous advocates on the continent of Europe particularly, and is daily multiplying its proselytes. To return, however, to the use of emetics, it appears that the efficacy of these remedies when judiciously administered in the early stages of fever, or indeed whenever called for by a particular train of symptoms, is too well established to be shaken.

Perhaps after blood-letting there are no remedies so much employed in fevers as purgatives. They appear to prove beneficial in several ways, viz. by the removal of constipation, an almost uniform and aggravating symptom, by the local depletion which they occasion, and by the revulsive irritation which they create. The mode in which the two first prove serviceable is so obvious, that we shall confine our remarks chiefly to the last.

Revulsion is a principle which although not overlooked, has been too much neglected in our speculations on the *modus operandi* of medicines. It is well known that if a sufficiently powerful irritation be made upon any part of the system, the blood will be determined to that spot from all parts, and thus distant inflammations are frequently relieved or entirely removed. It is certainly to this principle that a great number of our most important remedies owe their efficacy. The alimentary canal, from the numerous associations which it maintains with every portion of the body, offers the most eligible surface for the application of this agent, as it affords to its operation the widest and most extensive range. The remarkable sympathy existing between the brain and alimentary canal has always been noticed, and hence in diseases of the former, a strong irritation made and kept up upon the latter, is often productive of the greatest benefit, by producing a constant determination of blood from a morbid to a sound part; thus acting like the most direct local depletion as it regards the diseased organ. It is thus that we are able most satisfactorily to account for the eminent success of the purgative plan of treatment in the neuroses, so extensively employed by HAMILTON of Edinburgh, and Professor CHAPMAN of this city.

There can be very little doubt that the great benefit derived from the use of cathartics in typhus fever, to account for which various conjectures have been advanced, and amongst the rest, the one here advocated, is to be explained upon the same principle. No slender support is lent to the opinion by the fact, that one of the most prompt and effectual means of relieving apoplexy, is the injection of irritating articles into the rectum. In the gastric and enteric forms of fever, purgatives act mainly perhaps by the removal of constipation, and the copious local depletion they occasion. Their action being confined chiefly to the lower portion of the intestinal tube, it is very possible that the determination they produce to that part, may be productive of advantage, by diminishing the concentrated intensity of the inflammation.

Of late years no remedy has attracted so much attention in fevers, particularly those of a typhoid character, as the application of cold water to the surface of the body. Although condemned as a bold and injurious innovation by some, its great efficacy when judiciously adapted to certain states of the system, has received, we believe, the undivided assent of all those who have given the measure a fair trial. On the mode in which it operates, various discordant opinions have been held, but that its good effects cannot be owing chiefly to the mere abstraction of heat, is sufficiently obvious. It appears to me probable that its beneficial influence depends principally upon the remarkable power which it possesses of relieving the congestions of the vital organs, and brain in particular. Thus, it is asserted, that nothing is so effectual in removing the congestions of this organ, consequent to the action of opium, and thereby rendering the system susceptible to the action of the ordinary remedies, as the affusion of cold water.

The operation of the diaphoretic medicines, and the antimonials especially, in determining action from the centre to the exterior of the system, is too evident to be dwelt upon. By directing the current of the blood from the inflamed organ, they equalize the circulation, and assist in restoring that just balance so requisite to the establishment of health.

With regard to the use of the vesicating and rubefacient measures in fever, much of what should be said, has been anticipated when speaking of purgatives.

The efficacy of a blister, although it may be partially attributable to the serous effusion which it occasions, is chiefly owing to the powerful irritation which is produced, in parts in the vicinity of, or at a distance from the disease. Inflammation is thus enticed from the diseased part, by the new and more powerful one, instituted in a part not originally affected.

The operation of a blister then is a kind of metastasis, and supports in a very striking manner, the opinion of the local inflammatory origin of fever.

The same remarks are applicable to the rubefacient measures, which are generally applied at a greater distance from the seat of the disease than blisters. They are preferred by some to blisters, chiefly in the advanced stages of fever, the inflammation excited by the latter being relieved by the serous effusion which results.

We shall say nothing of the use of mercury in fevers; its action is not at all understood, and it is at best but an equivocal remedy, receiving the unqualified praise of some, and the unlimited censure of others.

We are content to remark, that admitting its utility, it does not in the slightest degree militate against the theory we have attempted to support.

This observation will also apply to the use of tonics in fevers, which only proves serviceable in a very limited number of cases, viz. where inflammation has been entirely subdued, and the forces of the system, exhausted by the previous disease, require to be recruited, or where there are distinct intermissions of which we can avail ourselves.

Researches after death.—Morbid anatomy alone can afford demonstration of a positive and conclusive character, with regard to the pathology of internal diseases. Arguments derived from other sources, are all more or less of an analogical nature, and can never lead to actual certainty, however plausible they may appear to the mind. It is to the investigation

of nature, by examinations after death, that we are alone to look for decisive results in our investigations into the nature of those diseases which during life are only obvious to us, by the symptoms resulting from their mode of affecting the general system.

Dissections in fever uniformly reveal to us, in whatever stage death may have taken place, morbid changes in some part of the body. In the fevers termed idiopathic, the morbid appearances are chiefly displayed in the brain and alimentary canal. Derangements of the other organs are indeed frequently complicated, but these may be regarded as accidental circumstances, not essential to the disease, but arising from some particular determinations which have taken place in the progress of the case. In those cases in which the gastric symptoms have been predominant, as the miasmatic fevers, the stomach is uniformly found in an inflamed condition, and the upper portion of the small intestines, particularly the duodenum, generally affected also. The state of these parts varies according to the intensity and duration of the disease. When death has taken place in the early stage, the morbid appearances are generally confined to the marks of simple inflammation, which exist in spots or are diffused over the internal surface. When, however, the disease had progressed considerably, coagulable lymph is found extravasated, and the mucous membrane variously disorganized by ulceration, &c. or even in a gangrenous condition. These appearances are frequently complicated with inflammation and congestion of the encephalon, as determinations to this part are very frequent in the progress of these fevers. In typhus fever, indeed, the brain is found chiefly affected, both in its substance and envelopes. Effusion into the cavity of the cranium is also very frequently met with, a circumstance which explains the cause of the great insensibility and coma incident to the latter stages of typhus. We have seen several cases of fever of a typhoid character, in which dissection after death revealed inflammation of the arachnoid membrane at the basis of the brain, accompanied by considerable effusion, while the other organs were in a

perfectly sound condition. A fever of this kind prevailed to a considerable extent in the wards of the Philadelphia Alms House Infirmary, in the winter of 1824, which was accompanied throughout by great insensibility and disorder of the nervous system, and which proved rebellious to almost every mode of treatment that could be devised. Dr. SAMUEL JACKSON, a highly respectable physician of this city, who has prosecuted examinations after death to a very great extent, states that he has never opened the body of one who has died of fever, in which appearances of inflammation have not presented themselves. In whatever point of view we regard fever, the evidence appears conclusive in favour of its origin in local inflammation. We have seen how striking is the analogy between its phenomena and those of inflammation generally, and that its causes, symptoms, treatment, and appearances after death, all demonstrate the existence of that morbid process in some part or organ of the body.

[Several articles have heretofore been published in this Journal on a form of disease peculiar to some parts of the Western country, and there known by the name of *Sick Stomach, Milk-Sick, &c.* . The following article on the same subject is from the Ohio Medical Repository, an interesting and well conducted semi-monthly paper, published in Cincinnati, Ohio, by GUY W. WRIGHT, M. D.]

ART. III. *On the "Sick Stomach," of the Western Country, or Gastro-Enteritis.* By Dr. N. CROOKSHANK.

HAVING seen several dissertations on a disease usually known by the first of these appellations; and information on the causes, symptoms, and treatment of it, being much called for, by the alarming fatality, as well as other circumstances connected with such a frightful complaint, the seeds of which,

it is agreed on all hands, seem to lurk among our very aliment, I deem it a duty which I owe to the public, to hold up the feeble rush-light of my experience and observations; and, though I may be found to possess but a solitary talent, endeavour to add a trifle to the small quantity of information as yet produced on this subject.

I have neither leisure nor talents, if I had a disposition, to write much, or I might commence with a luminous and eloquent introduction, by way of *condiment*, to this short disquisition. I shall therefore commence by reminding my readers that it is not every pertinacious vomiting, nor gastritis, that is to be at all confounded with the disease now under consideration. Such were not unknown to SYDENHAM, and the practitioners of his day, and probably to those of a much earlier period, as well as those of the present. Neither are we to make too many varieties of the complaint, on account of the occasional diversities of the symptoms—for it often happens that many people, of considerable districts, have escaped the autumnal diseases to which they are generally liable, while the proximate causes of a fever, or other *bilious* complaint, have been accumulating and only requiring an exciting cause, such as unusual exposure to cold, fatigue, grief, fear, &c. to bring them into operation. Thus, even late in winter, we often seen pleurisy, catarrh, and even wounds accompanied with more or less of the symptoms of autumnal fevers. I have seen a bilious fever supervene upon a drunken frolic. It will be most proper to consider the sick stomach, (for so I shall denominate it until a term more certainly appropriate shall be discovered,) under its most simple form, always bearing in mind, that the general principles of treatment are the same, whatever may be its general accompaniments.

Symptoms.—Previous symptoms, such as are common to bilious complaints, often precede. But it not unfrequently happens that, without any previous symptom to be noticed, even by the patient himself, on rising from a hearty meal he is seized with vomiting and other symptoms resembling those of common *water-brash*, (pyrosis of Cullen,) to which the disease, in its first stage, bears a strong resemblance. These symp-

toms are repeated at intervals of 15 to 30 minutes, and the first discharges are nothing more than the usual contents of the stomach and duodenum. If acid happens to be present, the bile is green, but after a few operations it resumes its natural and healthy colour. I have sometimes, however, thought that it might be less in quantity, and rather paler than it should be; at other times the reverse, in a slight degree.

By repeated efforts mucus is discharged, until, apparently, the whole mucous lining of the stomach is thrown off. At this time commences a most distressing burning sensation near the præcordia, with more or less thirst, sometimes excessive, for cold water, which is no sooner swallowed than rejected, or at furthest in a few minutes. This I consider the commencement of the second stage of the disease. Coldness of the surface, especially of the extremities, the features shrunk, the eyes rolled up, the pupil rather dilated, intolerance of light, and the whole countenance of a ghastly hue, great prostration of strength, both of the muscular and mental powers, yet no delirium until in the last stage, and near the last hours of the complaint; and even then not invariably present. Obstinate constipation is most frequently, but not always present. This seems to depend, chiefly, on the extent of the alimentary canal, in which the peristaltic motion is inverted. The pulse is, in general, slow and soft, gradually increasing in frequency, as the disease progresses—though I have sometimes been induced, from its fulness, &c. to bleed, and then with very good effect. It often merely diminishes both in size and frequency, either until a fatal termination, or until the treatment produces a salutary effect. Frequent eructations of a peculiar odour, which is neither that of putrid nor mortified animal matter, nor yet of *mercurial breath*; but more nearly resembling the *halitus* perceivable on the opening a recent dead body—yet not exactly that at all times: for it is sometimes a little acid, sometimes putrescent, and often a mixture of all these together, the rationale of which will appear presently. After many and violent exertions to vomit, the patient at length raises a few drops of fresh blood. These are in a few minutes increased to a pretty co-

pious discharge, but, in general, they are but the prelude to the dark porraceous vomiting, at which our medical fathers were wont to stare and wonder. This matter is nothing more than partially digested blood, mixed with mucus, bile, and perhaps stercoraceous matter, contained in the alimentary canal, all of them in a state of putrefaction, or approaching it. This blood is produced from the rupturing of some of the minute vessels of the interior coats of the stomach and intestines, either by the violence of the action of vomiting, or by the relaxation and debility of minute ramifications of vessels. Under all, or nearly all of the foregoing symptoms, with the palpebræ half closed, folding up his arms and his knees, and bending his head downward on his breast, the patient lies prostrate without complaining of any pain except the burning sensation of his stomach, which he in vain endeavours to relieve by copious draughts of cold water. These he swallows with avidity, then falls back on his bed for a few moments, then rises to vomit, and falls back again for a time longer, during which he is a little relieved; he then dreads to stir, to speak, or even to breathe, until he can refrain no longer, when he calls for another draught, rises, and goes through the routine as before. I am at a loss to say where, or by what symptoms, to fix the termination of this stage, for I can recollect no other symptoms, or if any other occurred, they have escaped my notice, except that when the strength became nearly exhausted, the patient falls prostrate on his back, where he lies until he expires, the vomiting is exchanged for singultus, or, if indeed he is turned on his side, his head is more or less retracted. But the hiccup is not a fatal symptom in every instance: for it occasionally appears in every stage after the first discharges. For I have raised even patients apparently gone, by happily producing catharsis, and at length removing worms, an occurrence not unfrequent in countries where people are in the habit of subsisting on coarse indigestible and illy prepared food, such as hominy, samp, and more frequently coarsely ground Indian meal. I have seen it produced by the patient's forcing himself to swallow a mouthful of bread, or

other solid aliment, and I have also seen this symptom alleviated, and even entirely obviated, by exhibiting a large dose of oil—whence I conclude that the sides of the stomach may, in these cases, have collapsed, so as to lie in close contact, and may thus have produced it. When, however, it can be ascertained, (if it can be,) that the hiccup proceeds from mortification, this may then, indeed, constitute a third stage. But such a stage, with its concomitant symptoms, is the dying stage, and beyond the sphere of the healing art.

Besides the above, there have been cases in which the patient did not vomit; some of which, too, were attended with diarrhœa, and others in which there appeared to be actual inflammation of the stomach. For, though alvine evacuations were readily and copiously produced, they procured little or no relief, and the patients continued to vomit and suffer until they actually threw up pure pus, at which time a regular crisis seemed to be formed, and after a tedious convalescence, recovered.

Dissections.—These have, indeed, been too few, and the varieties not sufficient greatly to illustrate the nature of the disease. I have been informed of two, made by gentlemen on whose veracity I can rely. One of these subjects was an inebriate. In him the viscera appeared all sound, though rather diminished, except the liver and pancreas, which were rather enlarged and somewhat harder than natural. The interior of the stomach entirely divested of its mucus, and the minute vessels a little enlarged. Another, of which I was also informed, had nearly the same appearance, except that the gall-bladder contained blackish green and thick bile. The other I dissected myself under great disadvantages.—(*Muta nocte et inter sepulchra.*)—In the jejunum I observed, towards the inferior portion, and thence upwards through the cavity of the stomach, first a quantity, and thence traces of the dark grumous or porraceous matter, the interior coat slightly injected with fresh-looking blood, to appearance extravasated, for it was too florid to admit a suspicion of gangrene. The mesentery, liver, pancreas, spleen, &c. sound,

but rather flaccid and emaciated. The fat of the omentum nearly absorbed. The gall-bladder contained some green bile. The external blood-vessels of the stomach very slightly enlarged. The interior surface entirely clean, and the minute blood-vessels enlarged, as in a slight ophthalmia; not, however, so as to show any sensible tumefaction. The thoracic viscera were, as far as I could discover, perfectly sound. I commenced this dissection in the fullest expectation of discovering gangrene, the patient having, I understood, lingered twelve or fifteen days; but I was wholly disappointed. Nothing of the kind was discoverable—the patient appeared to have died from perfect exhaustion—though I cannot doubt that some, perhaps many, die either from sphacelus or gangrene of the stomach and intestines.

The persons most liable to this disease are those within the years of puberty. If any below that age are attacked, and they are not a few, it is generally less severe, and if any above, they seldom recover.

Treatment.—The indications of cure, and the treatment founded thereon, which I have found most successful, are as follows. 1st. If the pulse be full, and especially if hard, bleed to relieve the inflammation, if any be present, to prevent its appearance afterwards, and to diminish the irritability of the muscular system; and I have never known a case do well if bleeding, under such circumstances, had been omitted in the commencement of the complaint.

2nd. To replace the ejected mucus, first by a substitute; oils are, therefore, strongly indicated, and ultimately by increasing the mucus secretions, replacing it in its own kind, for which calomel is, perhaps, the best medicine yet discovered. Oils are supposed to have other properties besides the mechanical one of lubricating, and the medical one of purging. They are said to be obtunding and anti-spasmodic. Dr. Good, if I recollect right, attributes something to their carbon.

3d. To restore the natural peristaltic motion and reproduce alvine evacuations. For this purpose castor oil is preferable, and calomel most likely to be retained, in small por-

tions at a time, until the desired effect is produced. From the beneficial effects of vegetable bitters in all other cases of nausea and vomiting, aloes, from its bitter and cathartic qualities, is indicated, where it can conveniently be administered. Injections are also highly beneficial.

4th. The beneficial effects of epispastics, in generally transferring the irritation from the contained parts to the containing, blistering should therefore compose part of the plan of cure. I have succeeded best by exhibiting castor oil, highly charged with calomel, by a tea-spoonful at a dose, adding ten or fifteen drops *tinc. opii*, immediately after every vomiting, or every hour, at furthest, until purging follows. This, when it succeeds, produces both ptyalism and catharsis, and when either, the patient is usually better and supposed to be safe. But in this, I regret to say, I have sometimes failed even then: but oftener by being unable to exhibit the medicine in sufficient quantity. I have, therefore, used the following pill:—℞. cal. ppt. gr. j.; gm. alois, gm. opii, a.a. gr. 1-4; mucilage gm. arab. q. s. M. ft. pill. j. These, exhibited as above, and injections, (sometimes the warm, at others the cold succeed best,) together with large blisters in the region of the stomach, most frequently succeed if commenced in time. But it must be considered a very dangerous disease—though I have known some cured by resolutely, in the commencement, swallowing several successive and large doses of castor-oil, even to the quantity of a pint or more—also, by drinking largely of chicken-broth, at first fresh and afterwards salted, gradually more and more, until the vomiting abated—then castor-oil. Even bears' oil has succeeded admirably among those who aim to be their own doctors.

The best aliment is starch, prepared in the common way, by boiling in water. This may be exhibited in any form most agreeable to the patient; but I have found it most convenient to dissolve the mucilage thus formed, in cold water, unknown to the patient, to whom the very idea of nutriment is distressing. I have tried warm baths, both by steam and immersion, and cold baths by immersion and ablation, but from none of them could I perceive much if any benefit, except

occasionally wetting or rubbing the whole surface with common ardent spirit, which sometimes seems to afford a little relief.

Causes.—I deferred the mention of these to the last, as the investigation of them, about which there seems to be such diversity of opinion, would separate the symptoms too widely from the treatment. I should not feel so much interested in this part of the subject, was it not evident, that those who have written, have taken much more pains to record *vulgar errors*, than to note down, with care and circumspection, those facts on which alone a medical man should place his chief dependence. I, too, could relate how Mrs. A. took the complaint from smelling the beef of an ox, which had been killed while afflicted with the disease, though nobody knew it before; and that Mrs. B. also *got it* by straining the milk of her cows, who had taken the poison by breaking out of the field that afternoon. That Mr. C. had watched his cattle, and seen them eat a certain herb; and Mr. D. has seen his gnaw a certain vine, and had made a decoction of it, and poured it down his dog's and his cat's throats, and that they had all died of the complaint. Nay more, I was told this very day, that Dr. —'s dog, following him past where the carcass of an animal lay, which had died of that poison, (whether vegetable or mineral,) and having eaten but a few mouthfuls of the carrion, ran after his master and fell down dead within twenty or thirty rods of the carcass. *Ohe! jam satis!* But I depend on no such recitals, and shall endeavour to give only plain matter of fact, according to my own observation, or authority I have no hesitation to rely on.

Are the remote causes, (or cause,) of vegetable or of mineral origin? And are there any others concomitant?

1. It is observable that the *sick stomach* is generally most prevalent in the latter part of autumn, and beginning of winter, often in summer, but never in spring.

2. It is, so far as I have been able to discover, wholly confined to particular districts, which may be as accurately defined as the bounds of farms.

3. The prevalence of the disease is over a larger or smaller

portion of each district, according to the height of the water in the natural springs. In extreme drought it is scarcely, if at all, heard of: when the waters have risen a little, it prevails in the lowest, when more, in higher levels, and when every spring is overflowing to excess, it disappears in the lower, and is only found in the higher or highest levels or common level of the country, where it shortly after disappears entirely, if the high waters continue.

4. When it appears in the summer, and rather earlier than usual in autumn, it is combined with fevers that observe quotidian and tertian periods.

5. The fresh waters, or the spring waters, such as used by the inhabitants, abound in earthy and other minerals more considerably than those of other districts, where the disease has never been known.

6. Most of those, who have been afflicted with the *sick stomach*, have been in the habit of using, for domestic purposes, and for their stock, the waters of such springs, of shallow wells, and wells badly cleaned, and whose milk cattle graze in the woods.

7. The districts where this disease prevails, abound in saline springs, many of which emit a more than ordinary quantity of *sulphuretted hydrogen gas*.

Note.—The seventh fact was stated in a manuscript I sent to the Editor of the Western Quarterly Reporter, and the observation subsequently added, that DAVY and an old writer whose name I do not recollect, say that the people of those districts where gypsum, (sulphate of lime,) abounds, are never healthy. But to what circumstance we are indebted for the discovery that these are calculated to produce this complaint, as Dr. CHAMBERLIN has stated, I am yet to be informed. I know indeed that the Harrowgate waters in Britain, similar waters near Albany, New York, and at some other places, are salubrious when used as a medicine. But so are emetic tartar and some other drugs, which we all know would prove quite uncomfortable articles, either as aliment or condiment. I, notwithstanding, forbore to state it as my opinion, that the gas had any agency in producing

the complaint. I only mentioned the fact of its presence, and left the point at large, having neither then, nor yet, formed any opinion on it.

The first cases I saw were near Big Cedar, a branch of Whitewater, in October of 1813, when I was told that it was caused by the milk of cows which had fed on a certain herb or herbs of poisonous quality. But, after the most diligent inquiry, I have not until this day, been able to discover this *pernicious weed*. I have spent days in that district and examined all the vegetables, herbs, and trees, growing there, and have not found one of them without its fellow here, except two or three, which are known to be perfectly innoxious; yet, even the very herbs and vines, (on which scarcely two agree,) "accused of the wicked plot," grow here, where the disease was never seen within seven miles of us. But I have become more and more confirmed, by repeated observation, that the fact No. 3, is true, and moreover, that cattle feeding in certain fields, watered by certain little rills, would sicken and die, while in fields adjoining they are safe; but when these rills are dry and the cattle are watered at wells, or are driven to large water courses to drink, they do not sicken, but remain healthy. I recollected too, the fact well known to farmers, that the falling leaves of some trees, frost-bitten clover, and possibly some other herbs, are dangerous for cattle. But why not experience their ill effects here as well as there. It cannot therefore be of vegetable origin. I for a long time doubted whether the disease was ever produced by the use of milk and flesh of animals, in these districts. But the fact that all civilized nations have enacted laws against selling the flesh, &c. of sick animals, should put that point so far at rest, as at least to suppose it possible. But is the disease never taken but from milk, &c.? I have been too often credibly informed that it is, to leave me any room to doubt the truth of it; for I have seen numbers who said they had been careful to abstain from these articles, especially milk, butter, and fresh meat, which alone are suspected for months, and yet were attacked with the disease. But it is not the occasional use of either the milk, or any other food,

which may be the cause, that would be apt to produce the disease; for I have lived on the milk, the butter, the cheese, the meat, produced in those places, and have never been afflicted with it; I have seen them carried, and have no doubt it is done every week, and sold in Cincinnati, yet who ever saw the complaint there?

There are two districts, in the circle of my practice, where the disease under consideration is prevalent, and I have, in the best manner I could, examined the waters of several of the principal springs and salines in each, and have found them to be highly charged with sulphate of soda and of lime, carbonate of soda, and carbonate of magnesia and of iron—also muriates of the same minerals. I suspected the presence of arsenic, and charged the ends of two capillary glass tubes, the one with nitrate of silver, the other with ammonia, and placed the charged ends in contact at the bottom of a glass tumbler, filled with some of the water of a spring, east of Brookville. The result should have been a yellow precipitate, at the point of contact. But none such appeared. I tested for copper by bright iron wires; but no coppery tinge appeared. A few drops of the purified juice of sorrel, threw down a white precipitate. A strong decoction of maple bark, (*acer rubra*,) gave a purple or bluish tinge, and of oak bark the same. All these experiments and results were made on sundry waters of springs distant from each other. Not indeed the same in every instance, but the same in the whole.

In two experiments, one with carbonate of potash, and the other with nitrate of silver, I threw down a purplish powder, nearly black, which I supposed to be cobalt; and if correctly, the wonder ceases: for Lewis and Clark, in ascending the Missouri, passed a region abounding in cobalt, and the waters made their men very sick, and it is said to be always combined with arsenic. For barytes, I had not the means of testing, unless I had been a more expert chemist; but I strongly suspect its presence, in at least some of the springs: lead I have never looked for; because its effects are entirely different from the symptoms above described. I have thus given a brief sketch of the results of my observations, which, as re-

spects the analysis of the waters, with my imperfect means and experience, could not but be very imperfect; but I am not without a confident hope, that some gentleman of more talent and experience in chemistry, and with better means, will follow me and bring to light the mysteries of this interesting subject. I have not indeed proved that the disease proceeds from the waters, but have, I think, rendered it probable; and, what greatly strengthens the probability, with me, is the fact that those families which use no other water, but from deep wells kept well cleaned, or large running streams, and whose cattle are fed in pastures, not watered by springs and rills, are not afflicted with it, though they had been before. At least I have heard of none. Whilst on the other hand, the vegetable origin is rendered more doubtful than ever, and must appear even more so, when we recollect that, though there are many poisonous vegetables in every part of the country, it would be extremely difficult to *compel* cattle to eat them, except when lean and hungry in spring, when the disease is unknown; and if it was, that the deleterious vegetable grows every where, and must produce its effects in one place as well as another.

ART. IV. *Observations on Morbus Coxarius.* By HARPER
WALTON, M. D.

DISEASES of the joints exercise a widely pervading influence over the whole system, and this effect is most striking in proportion to the magnitude of the joint affected, and the intensity of morbid action. Acute inflammations affecting the large joints, produce a constitutional inflammatory fever of great severity, often accompanied with coma and delirium, and frequently, indeed, eventuating in death itself. Abscesses of the large articulations likewise produce a severity of constitutional irritation, which few individuals can long survive.

Of all these morbid affections, the hip-joint disease, or *Morbus Coxarius*, and the white-swelling of the knee, are far

the most frequent and formidable. Both of these diseases are now considered as scrofulous, are very analogous in character, and demand for their cure, a treatment nearly similar. They rank among the most important diseases in surgery, and this importance is derived as well from the consideration of their endangering life, as from the unfortunate condition, arising from perpetual lameness and deformity which threaten the patient, when life has been preserved.

Various affections of the hip-joint occur, which are either varieties of this disease, or their characters so nearly approach it, that it is difficult to establish the diagnosis between them.

This disease happens in early life, chiefly to children under the age of fourteen, and is seldom known to occur in any forms beyond the age of twenty-five. Occasionally it attacks those who are far advanced in life; and observation has taught that no age, sex, nor condition, is entirely exempt from occasional attacks of this complaint.

Morbus coxarius for the most part, occurs in persons of a strumous diathesis. As among the most striking manifestations of the scrofulous nature of this disease, the following facts may be cited.

1. Its frequent occurrence in those who exhibit the universally acknowledged marks of the scrofulous constitution.

2. The contents of the abscesses which occur in the progress of the disease, discovering a "shiny, coagulated, flaky substance," which is a kind of matter almost peculiar to scrofulous abscesses.

3. The same absorption of osseous structure, and the same erosion of cartilages as occur in the scrofulous white-swelling of the knee-joint, the affections of the vertebræ and carpus, as well as other parts of the osseous system, are features prominently displayed by *morbus coxarius*.

The approach of this disease is generally in a manner so gradual, that its existence is often unsuspected until it has advanced far in its progress, and become fairly established. A slight weakness and limping of the affected limb are the symptoms which first awaken attention, and lead to the suspicion that something is wrong. This incipient lameness is doubt-

less occasioned by an effort on the part of the patient to support the weight of the body, principally upon the acetabulum of the sound side: for the least pressure sustained by the acetabulum of the affected side, is productive of considerable pain.

This disease is characterized from the very commencement by the existence of pain, which is at first slight, but soon becomes more considerable; and is deeply seated behind the trochanter major. More frequently, however, the pain is more intensely experienced in the groin, and often extending in the direction of the vastus externus muscle to the knee. But there is a peculiarity in the seat of the pain, which has been noticed by all surgical authors, and which I have observed for myself in several genuine cases of this disease, which I have had frequent opportunities to examine. This is a pain, generally confined to the knee, but sometimes extending to the outside of the thigh and leg. According to Mr. CHARLES BELL, this is ascribable to the course of the ischiatic nerve, which "passing so near the seat of the disease, is affected, and pain is the consequence, which is attributed to the outside of the thigh, the knee, and leg."* Mr. Bell was impressed with this opinion, from the circumstance of "having found a disease of the nerve in the ham producing pain in the sole of the foot, continued for nearly two years." This subject, however, is generally acknowledged to be but little understood: the sympathies of the different parts of the system, depending upon causes which elude detection. Among the most prominent of the symptoms which indicate the existence of the early stage of the disease of the hip-joint, the increased length of the limb of the affected side may be mentioned. This, no writer on the subject has omitted to record, nor any practitioner who has seen the disease, failed to observe. This condition of the affected limb, may always be exhibited by a comparison of the prominent parts of each inferior extremity: as the trochanters and condyles of the os femoris; or the malleoli of the leg: using due caution to have both sides of the patient's pelvis kept parallel. The attention of surgeons has

* Bell's System of Operative Surgery.

long been drawn to detect the true cause of this circumstance, and their opinions respecting it are not a little conflicting. By Charles Bell, it is maintained, that it is caused by a "filling up of the acetabulum, and a protrusion of the head of the thigh bone from its socket."* JOHN HUNTER ascribed this elongation of the diseased limb, to an inclination of the pelvis to the diseased side, by which it was rendered lower than the thigh and leg of the sound side. This inclined position of the pelvis, is produced by a posture which the patient naturally assumes, as a means to alleviate pain and distress. Dr. GIBSON embraces a similar opinion: ascribing the "apparent increase of length, altogether to an inclination of the pelvis, and a corresponding change in the vertebræ."† This may, indeed, be adduced, as the sense of the majority of modern surgeons.

By Mr. FORD it was particularly noticed, that in the progress of this disease the muscles of the hip undergo a striking alteration. This alteration consists in a loss of the natural convexity of the nates, occasioned by an emaciated condition of the muscles of those parts; particularly perceptible in the *gluteus maximus*. Although most remarkable, yet this change is not altogether confined to the muscles in the vicinity of the hip. The muscles of the thigh frequently exhibit a similar appearance.

Whilst the patient is yet able to move, much information may be derived from his position in standing, and his manner of progression. The position most comfortable to the patient is that in which nearly the whole weight of the trunk and superior parts of the body, rests upon the unaffected limb. From this cause we may discover a striking inclination of the body towards that side which is opposite to the diseased joint; and this I may venture to assert, though contrary to what might, on a superficial examination be expected, is the true reason why the diseased side of the pelvis is actually lower than that which is opposite.

It is likewise always observed, that in order that the foot of the affected side may only partially touch the ground, so that the pressure of the head of the thigh bone on the dis-

* Operative Surgery.

† Institutes and Practice of Surgery, Vol. II.

eased acetabulum, may, as far as possible, be prevented, the patient acquires the habit of bending his knee; and every force employed to extend the leg is productive of pain.

In the progress of morbus coxarius two stages are very distinctly marked. The symptoms already enumerated properly belong to the first, which is unaccompanied with suppuration.

The second stage is the suppurative. An abscess is formed at the seat of the disease; and this is accelerated or delayed, according to the character of the inflammation which occurred in the first stage, whether acute or chronic. The symptoms which precede the formation of pus, are not always distinctly developed. When, however, the inflammation has been acute, those parts which are adjacent to the joint and the integuments over it, become very painful. The skin covering the joints even assumes a reddish hue; whilst to these local symptoms there is conjoined a high inflammatory fever, affecting the general system.

In a case of this disease which happened to a very interesting girl of two and a half years of age, these symptoms were remarkably evident. For three weeks previous to the complete establishment of suppuration, she suffered the most excruciating agony; uttering incessant screams, whilst her extreme restlessness greatly augmented her torture. There was much tumefaction in the vicinity of the affected joint, and the skin covering it was red and inflamed. When the suppurative process became established, all the painful symptoms vanished; and she enjoyed a quiet and tranquil repose. The head of the thigh bone soon exhibited proofs of dislocation from the acetabulum, and a considerable circumscribed fulness presented itself over the diseased joint. Notwithstanding these untoward circumstances, her general health improved greatly, under a more generous diet, and hopes were indulged that the contents of the abscess would be absorbed, and that a cure would finally be procured by ankylosis. Six months from this period there was evident fluctuation in the tumour—a pointing quickly succeeded, and an incision was made for the discharge of the contents of the

abscess. From this period the vigour of her constitution sunk under the constant discharge of the abscess, and after the lapse of a few months she died: having undergone much severe suffering.

As indicative of the complete establishment of the suppurative stage, it is remarked by CHARLES BELL and Mr. COOPER, that we may likewise discover "startings and catchings" to occur during sleep. These symptoms were particularly remarked, in the case of which some account has just been detailed. Although, in the first stage of morbus coxarius, there is an appearance of an increased length of the affected limb, that state of things does not exist long. In five or six months from this period, when the suppurative stage is fairly established, the very reverse happens. The affected limb is found to be considerably retracted; the toes are turned inwards; the shaft of the femur mounts up into the external iliac fossa; and all the other indications of a luxation of the thigh upwards and outwards, may be observed. A partial retraction of the limb may be occasioned by a corresponding extent of caries and absorption of the bony and cartilaginous structure of the head of the femur or surface of the acetabulum: but when this retraction is very considerable, it generally proceeds from an actual dislocation of the head of the thigh bone, upwards and outwards, upon the external surface of the os ileum; occasioned by the action of the muscles which produce this effect, when the osseous and cartilaginous structure of the acetabulum have been extensively removed.

Abscesses in this disease usually form about the head of the thigh bone and the cavity of the acetabulum; and after remaining stationary, perhaps for months, finally discharge themselves by one or more openings about the hip and groin. I know of one instance, in which the abscess was discharged by an orifice, situated at a point nearly half way between the hip and knee, on the external side of the thigh.

To complete this account of the symptoms, which characterize the suppurative stage of coxalgia, it may be subjoined, that when abscesses, such as have been described, burst, they continue to discharge a thin unhealthy kind of fluid matter,

for a considerable time afterwards. Even under such circumstances, some patients of original vigour of constitution, may retain a good degree of general health, and continue, during a considerable period, without exhibiting much appearance of sinking or collapse. Most generally, however, a more unfavourable train of symptoms succeed. The patient lingers under symptoms of great exhaustion. Hectic fever, colliquative sweats, and diarrhœa supervene:—after suffering thus for an indefinite length of time, nature being completely exhausted, death terminates his misery.

As another termination of this disease, and one which not unfrequently occurs, I may mention that by *Anchylosis*. This mostly happens, when the head of the thigh bone is dislocated; and a bony union taking place between the head of the femur, and a corresponding part of the os innominatum, a cure is thus effected, without the occurrence of any abscess whatever. When anchylosis does ensue without dislocation, that process appears to be delayed until the inflammation has in some degree subsided; and the head of the femur, with a corresponding surface of the cotyloid cavity, are denuded of their cartilages. These parts, coming into contact, and presenting surfaces of bone, sufficient action is excited to produce their union.

Sometimes, when the disease has almost run its course; when the patient is nearly exhausted by hectic fever, and his system sinking fast under profuse discharges from the joint, a favourable change occurs. His strength gradually returns. The openings which gave discharge to the secreted matter are obliterated—this fluid is absorbed—anchylosis ensues, and a spontaneous cure effected in this manner, though rarely, without considerable deformity.

Hitherto we have considered coxalgia as it appears in the character of a scrofulous disease. Although it is believed that scrofula is for the most part concerned in the production of this disease, yet much evidence exists to show, that it does sometimes occur in patients, who are perfectly free from the strumous diathesis. Cases of this description may proceed from external violence; from lying in damp places; from all

kinds of exposure to wet and cold; and in short, from all those cases which may excite inflammation of the soft parts, constituting the structure of the joint. Diseased action being once established, the progress and termination of the cases do not materially differ from that, which we have already considered. It has, however, been observed, that this case is more manageable; which we naturally attribute to the circumstance of simple inflammatory action being more easily subdued, than that which is connected with scrofula.

A most aggravated case of this description occurred in the Pennsylvania Hospital, whilst I attended the practice of that institution. This patient, a boy aged about eight years, was admitted in the fall of the year 1824, for a disease of the hip-joint. His complaint was produced by the inhuman conduct of a person, who struck him a violent blow on the hip with the heavy end of a scrubbing-brush. He soon recovered from the temporary effects of contusion, but in five or six weeks became lame, in consequence of the pain with which his hip began to be affected. When first admitted into the hospital, much tumefaction was already discoverable in the vicinity of the diseased joint. Motion occasioned considerable pain, and the knee was sympathetically involved. It is scarcely requisite to add, that the most active and appropriate treatment was prescribed by the attending surgeon, to prevent suppuration, which, however, unhappily supervened. In the space of three or four months from this period, the swelling was greatly increased; the usual indications of suppuration also appeared; and an evident fluctuation in the tumour, pointed out the actual presence of an abscess. Its extension towards the surface was rapid, and a pointing quickly ensued. To obviate spontaneous bursting, the valvular incision of Mr. ABERNETHY was made at a suitable point, and nearly one pint of very fluid pus was discharged. Union of this incision by the first intention was obtained; but about one week after this period, the necessity again demanding it, a similar expedient was resorted to, in order to discharge a re-accumulation of the fluid. No effort, however, could procure the union of this incision, and it continued to give exit to a large quantity of

ill-conditioned pus. Hectic fever succeeded; the patient was exhausted by night sweats; emaciation, and extreme prostration ensued; the discharge became more and more profuse; his sufferings became extreme, and in five or six weeks after the operation, the patient died. So far as could be ascertained, this case had no connexion with scrofula; and yet, it exhibited symptoms, progress, and issue, similar to cases of that character.

In the year 1821, I was, myself, the unfortunate subject of the same kind of affection; which, though it continued with me for the period of more than a year, was happily arrested, by the employment of the most prompt and vigorous treatment. In the winter of 1821 and 22, I received several severe falls upon the ice, in which the whole force of the concussion was sustained by the trochanter major of the right thigh. By this, the head of the femur must have been driven with great violence against the bottom of the acetabulum; and the cartilages lining the osseous structure of the joint, with the ligamentum rotundum, in consequence, greatly contused. Owing to the gradual and almost insensible manner in which these parts assume the inflammatory process, I experienced but little inconvenience from the injury, until six weeks or two months after the period of its occurrence; when, suddenly, the affected joint gave me violent and continued pain. This was very much alleviated by stimulating embrocations and rubefacients, frequently applied to the seat of the disease, by a long course of purging with the neutral salts, by abstemious diet, consisting frequently of bread and water, by venesection, and the repeated application of blisters over the affected joint. In about two months I attempted to move about, with the aid of a staff for a support, but I was compelled to bear the principal part of my weight on my left side. The flexed position of the limb I found the most comfortable. The rotation of the thigh gave me no uneasiness, but intolerable pain was produced by extending the thigh upon the pelvis. Much pain and coldness existed at times in the muscles of the thigh and leg, and frequently, after using much undue motion, a sensation of numbness and pricking, accompanied

with heat, would pervade the whole limb. Sometimes a steady, deep-seated, obtuse, but very distressing pain, was confined chiefly to the gastrocnemii muscles of the leg. I had occasion, also, in my own case, to observe a symptom which I have not found noticed in any account of the diseases of the hip-joint. This was a fixed acute pain in the bottom of the foot. On inquiring for the same symptom in others, I have found a similar symptom to have been an attendant. By persevering in the use of the remedies which I have already noticed, combined with local depletion, by cupping, the danger of suppuration passed by; and I recovered gradually, under the daily employment of long-continued frictions with stimulating rubefacients, applied over the affected joint. For two or three years subsequently, a weakness, with occasional pain, remained in the part; and to this day, I am, by changes of weather, by slight injuries sustained by the joint, &c. reminded, by the recurrence of uneasy sensations, of my former sufferings.

I will no longer consume time in the attempt to prove, that a disease, in nearly all respects resembling the scrofulous affection of the hip-joint, described in the first part of this essay, may occur without any connexion whatever with the strumous constitution. This fact has been sufficiently ascertained by all who have had any considerable practice in the affections of the hip-joint.

Of the morbid anatomy produced by the hip-joint disease, or coxalgia in its incipient state, very little is known. To Mr. Ford we are indebted for the information derived from the dissection of two cases, which terminated fatally in the incipient stage. These disclosed erosions of the cartilages investing the head of the thigh bone and acetabulum; partial inflammations of the same; a thickening of the ligaments of the joints; caries of the osseous structure, and in one of the cases, a tea-spoonful of matter was found in the cavity of the joint.

In the Surgical Museum of Dr. GIBSON, there are several interesting specimens, illustrative of the morbid anatomy of the advanced stage of this disease. These exhibit extensive

caries and absorption of those parts of the os ilium, os ischium, and os pubis, which form the acetabulum; complete caries and destruction of the head of the femur, and in one instance, a total obliteration of the whole acetabulum.

It has been observed that the bones of the pelvis are more involved in the disease than the thigh bone; and this circumstance is considered as placing at rest, the question on the propriety of amputating, in cases of morbus coxarius. This fact was remarked by Mr. Ford. "In every case of disease of the hip-joint," says he, "which has terminated fatally, I have remarked, that the os innominatum has been affected by the caries, in a more extensive degree than the thigh bone itself."*

Treatment.—In the management of this disease, one inestimable advantage will be acquired by the surgeon, by attacking it at the very commencement, and applying, with unremitting assiduity, the most active and efficient remedies, before it becomes extensive and formidable from duration. He would commit a cruel and almost unpardonable error, were he to regard the approaches of this terrible disease with indifference; to suppose that the symptoms might soon yield to the operation of some of the lighter remedies; and to satisfy himself with the determination, that if the future severity of the symptoms should demand it, he would then call into operation a reserve of more active remedies. The fact is, no disease is more insidious in its advances than the one now under consideration; frequently becoming fairly established, before its presence is suspected; and only beginning to excite apprehension, when it is too late to afford relief.

It is only by attacking the disease in its incipient stage, that we can hope to repel its invasion and restore the patient. Without holding this truth constantly in view, and acting in conformity with it, in the surgical treatment of the complaint, we shall be disappointed in our expectations of success; and realize the mortification arising from the miserable end of our patient, or his unalterable state of deformity and decrepitude

* See Ford's Observations on the Disease of the Hip-Joint.

As soon, then, as the surgeon is satisfied of the existence of the disease, by the symptoms of limping, pain in the knee, groin and joint of the hip much aggravated by pressure on the acetabulum, &c. absolute REST and confinement to the recumbent posture should be directed.

Some embarrassment may occur at the very commencement, from a difficulty in choosing from among the several remedies to be employed, those which should first be resorted to. The indication in the treatment, is to prevent the accession of the suppurative stage, and the formation of an abscess, and hence all our remedies must be employed for the accomplishment of that purpose. No doubt, whatever, is now entertained, but that the patient should observe the strictest adherence to the antiphlogistic plan, in all its details, from the very commencement of the disease.

As a most material part of this plan, the diet should be as low as the strength of the patient will admit. Immense benefit may indeed be derived from the observance of this one particular, and it is to Dr. PARSICK that we are mainly indebted for the knowledge of the fact, that in the treatment of this disease, an abstemious regimen, patiently persevered in, is not less beneficial, than any course of medicinal treatment that can be instituted.

It may be asserted with confidence, that nothing can be of more importance in the treatment of this disease, than to secure the joint from motion. When this precaution is not attended to, and the joint is subject to continual agitation from the restlessness of the patient, or from other causes, all other remedies will be of little avail, and the symptoms will advance with increased aggravation. It is unnecessary to inform any one, that in all parts of the body affected with inflammation, motion proves highly detrimental. We have seen the most insignificant abrasions of the skin, by the influence of motion and consequent mechanical irritation, become dangerous and extensive ulcerations. We have likewise known the most obstinate ulcers, which had resisted every variety of topical applications, soon yield to rest and quietude. In morbus coxarius.

inflammatory action is extending its ravages in the soft parts which compose the structure of the hip-joint; and, as in other parts, motion here has all the pernicious effects of a mechanical irritant: and we may again assert, that a cure cannot be expected while this is permitted, but we may be assured that it will greatly aggravate the disease.

A perfect security of the joint from motion, is only to be found in the employment of *splints*, which ought to extend from a point at a considerable distance above the affected joint, to the middle of the leg; and the interior surface of them should be adapted to the convexities of the parts to which it is to be applied.

The structure of this apparatus, with its mode of application, is well described by Dr. TILTON, of Wilmington, (Del.) in a letter addressed to a gentleman by whom he was consulted, in the case of the child, whose case has been described in the preceding part of this essay.

“Let me advise you,” says this eminent surgeon, “to send for Mr. RUSH, the carver, and direct him to prepare a splint, such as he has often made under the direction of Dr. Physick, to secure the hip-joint from motion. This splint must extend from above the small ribs, below the calf of the leg. A pad well stuffed with cotton, and quilted, must be placed inside of the splint; and the whole well secured by a kind of corset, and laced to the body, thigh, and leg, by the hands of a judicious surgeon.”

As this splint cannot always be procured, an excellent substitute for it may be found in the use of one constructed of book-binder's boards. These must be cut into the proper shape, moistened, and applied by means of a roller. They soon adapt themselves to the shape of the parts to which they are applied, and when dry have sufficient strength and firmness to preserve the proper position.

Dr. Tilton insists upon the necessity of preserving the extended position of the thigh, and has invented a chair by which this may be maintained in a sitting posture, when the recumbent state has become irksome. This certainly de-

serves the title of an useful invention. It is described in the following extract from his letter.

"The general practice is to confine the patient to a recumbent posture; but this necessity I have obviated by the invention of a chair, the bottom of which has a semicircular hole cut in it, so that the thigh may remain in an extended



position, and the toes may just touch the floor, without bearing any of the weight of the body. The form of the bottom of the chair is described in the margin. It should have arms, and there may be a little step to support the sound leg and foot whilst

the other remains in an extended position, with the toes resting on the floor."

That the employment of splints may not be painful to the patient, care should be taken not to keep them applied too constantly at the commencement of their employment. Perhaps it will be useful to follow the directions of Dr. Tilton, which he has subjoined in the following extract.

"The splint," says he, "should only be kept on a few hours at first, say four hours the first day, seven the second, and so on, increasing the time every day, until the parts become accommodated to the confinement."

We next come to the consideration of *Cathartics* in the treatment of coxalgia. The well known efficacy of long-continued purging in this disease, is doubtless the discovery of Dr. Physick. Cathartics were, indeed, resorted to by the older surgeons in the treatment of morbus coxarius, merely as co-operative with other depletory measures, either to reduce inflammatory action or to obviate constipation of the bowels. But to Dr. Physick is the credit due of having introduced the practice as a principal dependance in the treatment, by carrying their employment to a much greater extent, and continuing their operation a much longer time.

Dr. Physick recommends the use of the drastic and hydrogogue cathartics, such as produce a copious discharge from

the intestinal exhalents, and excite powerfully the peristaltic motion of the bowels.

The efficacy of this practice it is easy to explain. Purging, conducted in the manner just described, acts beneficially, not only by the revulsion which it produces from the diseased part, but by its well known property of reducing the action of the sanguiferous system, and of reducing inflammatory excitement.

Charles Bell advises "repeated small mercurial purges" in the cure of this disease. Whatever benefit may have been derived from this practice, it could not have been employed with the views we have already stated, it being far too feeble for their accomplishment.

Mr. Samuel Cooper does not even mention cathartics, in his account of the treatment of this disease.

The practice of purging, in the manner which has been detailed, must be considered then as among the most important means of treating the disease of the hip-joint; and it may be resorted to with incalculable benefit in the management of every case. Those of the purgative medicines which may be most beneficially employed, are the saline; such as the *sul. sodæ*, or *sul. magnesiæ*; or combinations of these, as *Jalap* and *sup. tart. potassæ*, *rhubarb* and *magnesia*, &c. Dr. Gibson strenuously advises the employment of the purgative plan of treatment; and as a very useful rule for its conduct, directs "purging every other day."

Much might be said of the importance of local applications. It is sufficient to say that they are indispensable. Applied directly to the seat of the disease, they are evidently more efficient than general remedies, which counteract a local disease, through the medium of the system at large. They may be employed concomitantly with constitutional remedies, of a choice, and in a succession which circumstances must determine.

Of the topical applications to be mentioned, *issues* rank the first in point of importance. Nearly the same local remedies as are now employed in this disease were resorted to by the oldest surgeons, whose writings have descended to us. What,

however, was most esteemed by them, was the forming of an eschar, or issue, in the vicinity of the affected joint; so as to keep up a perpetual drain. To this practice nearly all are agreed. By common consent they are considered as a principal dependence in white-swelling; and as the morbid anatomy of this disease, discovers, in a majority of cases, the same alteration of the bones, ligaments, and cartilages, as occurs in morbus coxarius, it would seem proper to treat both diseases on the same principles.

Issues appear to be of the highest importance in the treatment of all scrofulous affections. In the treatment of the *curved spine*, this position is strengthened, for confessedly, nothing is of greater importance here than caustic issues placed on each side of the vertebral column, and kept discharging a long time, by means of stimulating dressings.

The efficacy of issues, may doubtless be referred to the counter irritation which they produce, and their consequent property of diverting diseased action from deeply seated parts to the cutaneous surface.

With respect to the situation of the issue, it may be placed either on the anterior or posterior side of the joint. The depression, just before and below the trochanter major, is the position which most surgeons have assigned for *issues*. Dr. Gibson prefers placing them before, in consequence of the danger of penetrating the cavity of the joint, when made in other situations, which accident might prove fatal to the patient. With respect to the proper size of the issue, that of a "crown piece" has been directed. In most instances it is necessary to keep up the discharge from the issue for a long time.

As somewhat allied in their operation to issues, *setons* may next be mentioned. These may sometimes be substituted for issues, when circumstances forbid the employment of the latter with advantage. Their action, however, is more superficial than that of issues; nor do they, like these, appear permanently useful. Where issues can be employed, they should certainly be preferred to remedies which display inferior curative powers.

When setons are employed, they should occupy the same position as directed for issues; and the discharge should be continued as long as possible. They require frequent renewal, which must be effected in adjacent positions. I have known the seton used in one case only of this disease, but it did not appear to render any essential service.

Blisters belong to the same class of remedies, and operate on similar principles. Although blisters have been admitted into the list of remedies suited to the cure of this complaint, yet their employment has not been insisted on with so much stress as the remedies last mentioned.

"A caustic issue," says Mr. Samuel Cooper, "seems to be more beneficial than a *blister* in cases of diseased hips." This expression, however, is entirely relative; and does not militate against the utility of blisters, because issues are better.

Of late their employment has become more common, and by most of our practical surgeons, they are familiarly prescribed. Whilst I attended the practice of the Pennsylvania Hospital, blisters were very commonly prescribed in the disease of the hip-joint, and they were found to be productive of very considerable benefit. In a case which occurred to Dr. PICKERING, great dependence was placed on the application of blisters of cantharides over the diseased joint. Being well acquainted with the family of the patient, I had frequent opportunities of witnessing the effect of this treatment. When the *blister* was omitted, the complaint always became worse. In my own case, *blisters* were applied in rapid succession, and always occasioned a profuse discharge for a considerable time. They appeared to act a very important part in the cure, which happily ensued. Much testimony in favour of the efficacy of blisters in the treatment of the disease might be adduced. They should be applied directly over the affected joint; they should be frequently renewed, and the discharge promoted as long as possible, by means of stimulating dressings.

To the same class of remedies, *frictions*, *fomentations* and *rubefacients*, may be added. Without dwelling much upon the efficacy of these, I shall merely remark, that such applications are undoubtedly useful, and prove in some degree

curative, by producing determination to the surface and relieving deep-seated disease; but they should never be employed to the exclusion of more active remedies already described. I have known them usefully employed, in a state of convalescence from this disease, after the continuance of the more efficient remedies was no longer necessary. In such cases, they remove remnants of lingering pain and hasten convalescence.

Topical blood-letting, by means of *leeches* and *cups*, is a remedy of the highest importance in the treatment of this disease. Next to *issues*, it should have ranked in the order of the topical applications; but a desire to associate remedies of the same class together, determined its subsequent insertion. In the early period of the disease, topical detraction of blood from the vicinity of the affected joint, presents by far the most efficient means of mitigating pain, and abating inflammatory action. This practice, alternated with the use of the vesicatory applications, constitutes one of the most familiar methods of treating the disease, resorted to in the present day. It is to be recollected, that *topical bleeding* is more particularly serviceable in the earliest stage of the disease; and it should be frequently employed in the management of most cases.

The plan of treatment, which has been delivered in the preceding pages, is exclusively adapted to the first stage of *morbus coxarius*. It is intended to effect a resolution of the disease, and to prevent the accession of the second or suppurative stage, which terminates in abscess in the cavity of the joint.

When, however, the disease advances in despite of the most judicious treatment, to the second stage, and an abscess has become established, the remedies adapted to the first must be discontinued as useless; and other measures are to be instituted. Unfortunately, when the disease has advanced so far as this, little benefit can be derived from any treatment now known; and no art can save a majority of such cases from a fatal issue, whilst a number are devoted to a life of miserable deformity and decrepitude.

When suppuration is about to take place, the symptoms

undergo much aggravation. The parts immediately over the affected joint, and in its vicinity, become much tumefied, hot, and extremely painful. Sometimes the skin assumes a reddish hue, and much constitutional fever prevails. The patient is extremely restless; and children so affected, give vent to their sufferings in loud and repeated screams. After some time, those symptoms abate—an abscess has formed, and the patient becomes tranquil, and free from distress. Little now remains to be done but to persevere in the use of the *splint*; to preserve the extended position of the limb; to prevent motion; and to watch the progress of the abscess. All depletory measures must be relinquished; and it will be proper to improve the *diet*, and impart vigour to the system, so much reduced by the operation of a sedative course of medicine.

It is at this period that much benefit may be derived from the employment of the *extract of cicuta*. This is a favourite practice of Dr. HARTSHORNE of this city; and he informs me, that he has had reason to be particularly pleased with the salutary powers which this article displays, in the treatment of the hip disease. It is to be exhibited only, after due depletion has been used, and when the inflammatory symptoms have completely subsided. When, also, the suppurative stage has become established, the *extract of cicuta*, administered regularly, so as to keep a constant and equable impression, will prove eminently serviceable. The useful properties of this medicine in the management of the hip disease, are due to its tonic and invigorating powers; by which the powers of life are upheld, and that general collapse which so often fatally accedes, is frequently prevented. Combined with opium, and exhibited in proper doses, it will prove useful at all times, when there is much pain, by its anodyne and soothing properties.

The dose of the *extract of cicuta* should be small at first. We may commence with one quarter of a grain for a child 4 or 5 years of age; and the dose should be gradually increased every morning, until the wished for effect is produced, taking care to ascertain the strength of each new parcel of the medicine before resuming it in large doses.

In some cases where the abscess has been small, its contents have been removed by the absorbents; and the disease has thus terminated in ankylosis. More generally, however, the abscess advances rapidly to the surface, and a pointing quickly ensues. It is of the highest importance, under such circumstances, to watch narrowly the arrival of this crisis; and by all possible means to prevent a spontaneous bursting of the abscess. This, the surgeon should obviate, by making an incision into the abscess over a sound part of the skin, after the manner described by Mr. Abernethy. This incision is of a valvular form, and is intended to facilitate an immediate union of the divided parts.

After discharging the contents of the abscess, the utmost care should be exerted on the part of the surgeon to close the incision, and by the judicious employment of pressure to procure its union by adhesion. Should the matter reaccumulate, a similar incision should be made; the contents be again discharged, and the greatest precaution observed to prevent the access of air, by procuring an union of the incision, by the first intention.

By a cautious procedure of this kind from time to time, the contents of the abscess may frequently be removed, and finally it may be obliterated by the granulating process; when the head of the thigh bone may be firmly united to the pelvis, and ankylosis thus effect a natural cure. When this happens, the deformity is not often very striking; and the defective length of the affected limb may be concealed by wearing a high-heeled shoe.

When, however, this end cannot be obtained, the patient gradually declines under the constant and long-continued discharge of matter from the cavity of the abscess.

All the symptoms of hectic fever being at length induced, the utmost prostration supervenes, till exhausted nature finally sinks under the increasing pressure of disease, and death terminates the patient's sufferings.

In this last state of things, though apparently hopeless, yet the patient is not to be abandoned to despair.

The hectic symptoms should be combatted by the remedies

which are usually prescribed in this disease, and the powers of life upheld with rigid assiduity. Something might yet be done to mitigate pain and palliate distress. It is no less our duty to alleviate the miseries of disease, and "smooth the bed of death," where recovery is impossible, than to attend to those offices where we have expectations of success.

ART. V. *Observations on Menstruation.* BY W. P. DEWEES,
M. D.

THE menstrual discharge may with much propriety be considered as peculiar to the human female; if there be exceptions to this rule they are few, and but ill ascertained. We are told that the female of some species of monkey is liable to it; but perhaps in no other way than the bitch, the cow, the mare, the female elephant, &c. are said to be; for these in the time of heat, have sometimes a sanguineous discharge from the vagina. But this must not be considered as a genuine menstrual evacuation; as it proceeds merely from the rupture or abrasion of some small vessel, during the excessive engorgement that is known to take place in the vaginæ of these animals, at such times. Besides, no moral end could be answered in the brute, as in the human female, by such a discharge.

Indeed, some would deny the menstrual discharge to be an original function, even in the human female, as ROUSSEL, and after him EMMET; that this evacuation is the result of the social condition of man, and not the consequence of organization. Roussel has endeavoured to prove this, by declaring that man in a state of society, feeds more than is absolutely necessary for his exigences; and that he becomes plethoric in consequence; and that this condition must be relieved by some artificial drain; in the male, by hæmorrhage from some part or other of the body; and in the female, by the menstrual discharge.

He declares, "que le flux menstruel, bien loin d'être une institution naturelle, est au contraire un besoin factice con-

tracté dans *l'état social*.”* But it may be asked, what is to be understood by “*l'état social*?” If it be declared, it does not express the condition of man in a state of refinement, it must be admitted to mean man united by some social compact; yet, wherever he has been found, so far, we have unquestionable proof that women menstruate; notwithstanding Roussel declares, that the uteri of the Brazilian women do not perform this function.

But were this true with these particular women, (a circumstance much to be doubted,) it would be but an exception, and should not be taken, or rather mistaken for the rule. Among the aborigines of this country hitherto examined, no such exception prevails; yet, were this a design of nature, it might most reasonably be looked for, among these varied, widely spread, and simple people.

Why this opinion of Roussel should have found abettors, is difficult to say; since, it has neither facts, nor ingenuity to sustain it. The hypothesis is founded upon circumstances totally inadequate to the effect—namely, “*Les hommes rassemblés ont toujours cherché à resserrer les liens de la cordialité dans les festins. La joie est plus vive, et les épanchemens plus tendres dans ces momens où la machine se remonte par une nouvelle nourriture: on est alors plus content des autres, parcequ'on est plus content de soi même; l'absence de soucis laisse alors à la nature la liberté de jouir de tous ses droits, et même d'en abuser; car il arrive souvent que, ne mêlant plus la sensation des mets d'avec l'impression de la gaîté, elle prend le change, et se surcharge d'alimens qu'elle croit encore nécessaires, longtemps après que le besoin est satisfait.*”†

The consequence of these indulgences he supposes, to be a plethora: and this plethora finds an outlet in the female, by the menstrual discharge; and in the male, by hæmorrhagies from various parts of the body, according to the period of life; or if the hæmorrhagies do not take place, the consequences of the excess of blood show themselves in a variety of other

* *Système Physique et Morale de la Femme*, p. 113. † *Idem*.

forms; as affections of the chest, rheumatism, hypochondriasm, stone, gout, asthma, &c. &c.

It will be perceived, that this doctrine is but a modification of that promulgated by GALEN—the only difference is, that Galen thought women were ever subject to the menstrual discharge, but a plethoric condition of the system was essential to its production: while Roussel supposes this plethora is of artificial origin; and that the menstrual discharge is the fortuitous consequence, to relieve the system from danger.

A few observations will be sufficient to destroy this curious speculation. 1st. From no record of the history of the human race, does it appear other than, that the female was always obnoxious to this discharge—thus, by MOSES, it is distinctly stated to have obtained among the women of his time, and we have every reason to believe as an arrangement of nature; so also among all the tribes of the most savage people. In this country the most abundant proof exists in the journies of Major LONG, that the menstrual evacuation is a constant attendant on the female, where human nature existed in its greatest simplicity. 2d. The cause assigned by Roussel, namely, “plethora,” exists where this discharge has been interrupted; and to recall the menses often requires the abstraction of blood and other debilitating remedies. 3d. This function is oftentimes performed with the utmost regularity, and in the accustomed quantity, where the most decided debility prevails. 4th. That this discharge is *certainly* prevented, however long and regularly it may have been established by the removal of, or from the diseased condition of the ovaries. 5th. That an abstraction of blood just before the period, or at any other time, does not prevent it.

Besides very many, indeed all the mammiferous animals have at certain periods, a discharge from the vagina, which is either a discharge essential to fecundation, or gives evidence of the capacity of the animal at that moment to be impregnated; and this discharge is sometimes coloured as observed above, accidentally, but not necessarily; and that this discharge is in some manner connected with impregnation is evident, since it never appears in its healthy condition but at the periods

when the animal is capable of fecundation. Now it is equally certain, that the human female is also capable of being impregnated after each healthy menstrual period.

Nor is this discharge in the brute a mere increase of quantity of the ordinary excretion of the parts—it differs essentially from it, at least in its sensible qualities; as is evident to the discriminating nose of the male. Thus it would appear, that nature intended some end should be answered by this peculiar condition of the brute; is it not then equally certain, a similar end is answered in the human female, by the menstrual evacuation?

Again, this discharge commences only when the female is in a condition to meet and overcome the ordinary contingencies of impregnation and delivery. Now were this a fortuitous discharge merely, why should it occur only at periods, at which the female can propagate her species, and always at a certain period of female life? for I must protest against the opinion of Roussel and some others, who suppose impregnation may take place, before the menstrual action has been awakened, and after it has ceased.*

That impregnation has taken place before a coloured discharge has been witnessed from the vagina, and after it has ceased, I am every way willing to admit: but neither of these circumstances prove the absence of the menstrual action; or that action which only exists during the integrity of the ovaria, and which ceases, or never takes place if they be imperfect, and which is essential, either directly or indirectly to impregnation.

Roussel† declares menstruation to be “less a cause than a sign of fecundity.” In this I agree: for the menstrual action cannot be a cause of fecundity, since this capacity is known to depend upon the ovaria. Yet it is nevertheless essential to propagation, that the internal secreting surface of the

* Would it not seem extraordinary that the plethora of Roussel should not exist until a certain period of life; and this period uniformly modified by climate, &c. or that it should not take place after another certain period of life to maintain this discharge!

† page 117.

uterus be in a healthy condition, and this manifested by a healthful catamenial discharge; or in other words, when the quantity and quality of the menses are free from objection, and the ovaries free from imperfection.

It may therefore be considered as highly probable that the absence of capacity to be impregnated, will sometimes depend upon the imperfect condition either of the uterus itself, or of the ovaries. If the former, it may consist in some derangement of the secreting surface of the uterus; and though there may be a regular discharge of a coloured fluid, and this so nearly resembling the perfect secretion as to deceive the senses, it may yet want an essential condition or quality, and thus entail barrenness—hence, all women are not fruitful who may have a regular catamenial discharge; though as far as can be judged of by appearances, it is every way healthy; and at the same time the ovaries free from fault.

Nor is this perhaps difficult to explain, or rather to imagine, how this may happen. I adopt the opinion that the menstrual discharge is a genuine secretion; and that the internal face or lining of this organ is the portion which furnishes it; now it will be evident, that whenever this part is in any way deranged, its product must also be impaired; but the injury does not consist so much in the imperfect elaboration of the menstrual fluid, as in the inability of this surface to furnish a healthy decidua after impregnation has taken place; for there can be but little doubt that the same apparatus furnishes both one and the other. This condition of the uterus I have reason to think is not of frequent occurrence; an ovum may be fecundated, and duly conveyed to the cavity of the uterus, but suffered to perish there from the want of a healthy decidua; it is therefore cast off unperceived, at the next menstrual purgation, and the woman is relatively barren.

What strengthens this opinion is, that this lesion of the uterus is frequently repaired, by either proper remedies, or by the powers of the system alone; and the woman afterwards becomes fruitful. I am fully persuaded I have witnessed a number of such cases.

If it depend upon some imperfection of the ovaria, it may

not, perhaps, admit of relief. The diseases of the ovaria may consist; 1st, in their imperfect developement; 2d, in derangement of structure; 3d, in a want of healthy organization of the ova themselves. Now neither of these conditions of the ovaria may be so complete as to altogether destroy their influence upon the secreting surface of the uterus; the catamenial discharge may therefore continue with all due regularity, and yet the woman may be barren; and hence this discharge cannot be considered rigidly, even as a sign of fertility.

Yet it may be admitted safely as a general rule, that women who menstruate regularly, without pain, or the expulsion of coagula, are fecund; and that the reverse of these conditions is sure to be attended with sterility. It may also be observed, that we cannot attach much meaning to the quantity evacuated; for the woman who may evacuate double the quantity of another, is not for this reason more certainly prolific. I have known a number of instances of repeated impregnations, where, as far as could be ascertained, not more than two ounces were habitually evacuated; and this not occupying more than a day and a half or two days for its elimination: while, on the contrary, I have known women who were barren, discharge three or four times this quantity; and the fluid bear all the sensible marks of a healthy secretion. From this it would appear that mere regularity in returns, the elimination of a proper quantity of fluid, and this fluid of apparently a healthy character, do not always declare the woman to be fecund; yet, when the woman has never menstruated, or when this discharge has ceased, agreeably to the ordinary arrangement of nature, she never is impregnated, or ceases to become so if she ever have been.

It is true, we are told, by highly respectable authority, as observed above, that impregnation has taken place before the inception of the menses* as well as after their final cessation. The explanation of this seeming exception is not difficult, for the reason already assigned; namely, that because a

* Rondelet mentions a woman who was delivered twelve times; and Joubert another, who bore eighteen children, neither of which had ever menstruated. *Gardien Traité d'accouchemens, Vol. I. p. 220.*

coloured fluid was not observed it was taken for granted that the uterus had not assumed the menstrual action, or had not resumed it.

Now it is admitted by all practical men* who have paid attention to this subject, to be a fact, of no very rare occurrence, for the menstruous evacuation to be serous for several periods, before the menstrual blood, properly so called, shows itself, more decidedly to mark the establishment of this process. This is especially the case with those who have this discharge to commence early.

I was consulted some months since, in the case of a young lady between twelve and thirteen years of age, who was labouring under a diseased spine, but who was also afflicted with head-ache, palpitations of the heart, and great sickness of stomach. She had also at somewhat regular periods a pain in the small of the back, with a bearing down sensation; a desire to pass water; to go to stool; &c. From these circumstances her mother concluded, and in this I concurred, that an effort was making for the production of the menses, though the common external signs of puberty were almost entirely wanting. I however requested the mother to be careful in examining the linen worn by her daughter at these periods, and ascertain whether there was not a discharge from the vagina resembling leucorrhœa. This was done: she reported there were considerable marks upon her linen; and this was observed for at least four periods; after this menses of the usual appearances were established, and continued with tolerable regularity up to the present time. This is the third instance I have witnessed of rather precocious menstruation in girls with diseased spines; whether there is any connection between this affection and the functions of the uterus must be left to future observation to determine.

Thus we see how easy it is to err on this point with young

* Gardien says, "Si quelquefois le sang sort brusquement sous couleur rouge, le plus constamment les regles commencent par un flux séreux et finissent de meme." *Traité complet d'accouchemens*, Vol. I. p. 238.

girls; and to suppose they have been made to conceive before the catamenial period had commenced; nor is the error less liable to be made in those rare instances of impregnation, after the final cessation is supposed to have taken place; for in several well attested instances of pregnancy at advanced periods of life, it was found upon close examination, an effort had been made by the system to restore the catamenial flux by a periodical, serous discharge.

In one case, which fell in part under my own notice, this effort was certainly made; but perhaps without the knowledge of the person concerned; yet it was sufficiently evident to the individual who washed her clothes, and who furnished me with the account; for it is presumable with such evidence of returning youthfulness, she would scarcely have risked the consequences which followed her amour.

I was requested in the month of March, 1795, to visit a young child ill with the natural small pox. At almost every visit I paid the child, I observed an aged woman much afflicted at its dangerous condition. Having an opportunity during the absence of this person to inquire who she was, to my great surprize I was informed, she was the mother of the child. I thought my informant was attempting to impose upon me, and told her so, but she seriously declared I might rely upon the fact. I was now informed that the mother of the child had never been married; and that she was in her sixty-first year when the child was born.

The case interested me much, and my inquiries became very particular; and from much conversation, I learnt that the old woman had ceased to menstruate at forty-five; but, that about two years before the period of my attendance on the child, she, (the nurse of the child, and the washerwoman of the mother,) had observed monthly evidence of a return of the catamenia; it was not much coloured, yet sufficiently so as to excite attention. Now this case would certainly pass for an instance of impregnation, after the menses had ceased, and it is one every way calculated to deceive upon this point. I have therefore concluded, that the cases upon re-

cord purporting to be of this kind, may have been similar to the one now related.

So far, facts seem to oppose the idea, that impregnation can take place before the menstrual action has been established, and after it has finally ceased; let us now see if reasoning will not corroborate them.

It will not be disputed, that a part cannot perform its peculiar or appropriate action, until such part is completely developed, or its organization perfected; consequently, the uterus will not be subject to the menstrual action, until the surface which furnishes this fluid is perfect in its arrangement; and not then, unless it receive the peculiar stimulus given by, or sympathizes with, the perfect ovary or ovaria. Now, by all we learn either from experiment or accident, it is certain, that the menstrual action is forever prevented, by the extirpation or destruction of the ovaria; consequently, this action is dependent for its existence upon the state of integrity of one or both of these bodies.

Now, it is equally certain, that if the ovaria be incomplete, they cannot furnish perfect ova, or ova capable of fecundation; nor can they give or excite that action which furnishes the menstruous fluid. If on the other hand, the ovaria be properly developed, and the menstrual action does not take place, it is but reasonable to suppose that some imperfection must exist in the uterus itself; and if this be admitted, it would seem to follow, that a perfect action cannot be expected from an imperfect organ; and it will be yielded without dispute, that no process in the human system requires greater perfection of organs, than those subservient to generation.

Therefore, as regards the main point, it is unimportant whether the imperfection be seated in the ovaria, or in the secreting surface of the uterus; for if it exist in either, coition cannot be entirely successful. If the ovary furnish a perfect ovum, it may be fecundated, though the menstrual action had never taken place; but this is but one step in the march of generation; for if the ovum be not properly cherished after it shall have arrived in the uterus, it will soon perish and be cast off. For that it may be sustained and properly deve-

loped, it is essential that the uterus produce the decidua; and that it cannot furnish this sine qua non is highly probable, since the part or organization which is to yield it, is the same as that which performs the menstrual secretion; and the imperfection of this is beyond doubt, since it has not formed this fluid.

From the history of impregnation, it seems to require the united perfection of the internal uterine surface, and at least of one of the ovaria, that its object shall not be defeated; for if these organs be imperfect, either fecundation cannot result, or it will take place unavailingly. Thus, if the ovaria, from disease or imperfection, cannot furnish an ovum fit to profit by the application of the male semen, fecundation will not ensue; if, on the other hand, the internal face of the uterus be diseased, and incapable of furnishing the decidua, the ovum must perish though fecundated. It is therefore but reasonable to conclude, that if the uterus be not sufficiently developed to secrete the menstruous fluid, it must be imperfect; and if imperfect, it cannot perform what is essential for the preservation of the ovum after it have been placed in its cavity.

Fecundation, after the cessation of the menses, must be equally doubtful; since it is probable it would require a renewal of the menstruous action, that fecundation should be successful. At present, we are not sufficiently acquainted with the conditions constituting this cessation; or in other words, what changes take place in either the ovaria, or in the secreting surface of the uterus itself. We only know it does take place, but how we are altogether ignorant. The moral cause of the cessation is better comprehended than the physical.

It would seem but fair to conclude, that if the early part of female life required a certain condition of the uterus and ovaria, to render coition successful, it would be no less necessary at the more advanced stage: I have in commenting attempted to prove this necessity, and the same arguments should serve for the later period. For it is evident that the ovaria and uterus must have suffered a change, or the woman would have continued to menstruate: now it is of little moment whether

the change occurs in the uterus or in the ovaria, since either incapacitates the woman both for menstruation, and conception.

It is, however, probable, that the ovaria suffer deterioration earlier than the uterus; as many women continue to menstruate regularly for a considerable time, until the final cessation, without conceiving. The ovaria may cease to produce ova to be fecundated, and the absence of this power may eventually cause the final departure of the menses, since they would be no longer necessary or useful.

It would seem, therefore, from impregnation now and then taking place, long after the disappearance of the menses, that an ovarium may regain its powers and furnish a new ovum; and when it does regain this capacity, the internal face of the uterus may re-assume its menstrual action, and impregnation may be under proper circumstances the consequence. But that it may be eventually successful, precisely the same condition of the uterus must exist, as when this process was successful in the earlier periods of life; for if this be wanting, the same consequences must necessarily result.

It seems that the production of efficient ova is governed by some general law in each individual female; in the brute it is regulated with great exactness, as they have regular periods of salacity, and this salacity may depend upon the presence of a perfected ovum or ova. In the human female this periodicity is not so exactly limited, as individuals differ very much in their capacity to be impregnated; and each have a marked period, *cæteris paribus*. Thus some women are impregnated every twelve or thirteen months; others every eighteen months or two years; while others enjoy much longer intervals.

I know a lady who conceived but once every seven years, and she bore four children at these intervals. I have known several to have a lapse of three years between each pregnancy, &c. It would seem from these facts, that it requires a lapse of a certain period to perfect an ovum; and that this process is much more rapid in some instances than in others. But when

the ovaria lose the power of furnishing ova, as at the cessation of the menses, impregnation ceases of course.

Impregnation after the final cessation of the menses, is of extremely rare occurrence, and should be ranked among those extraordinary instances, in which the system makes attempts to renew certain lost functions, or repair lost parts. Thus, the eye sight has been restored, after having remained imperfect many years; the hearing in like manner has returned after long deafness; the teeth have been renewed after they have for many years been lost, &c. Is it not then more than probable, that if this case occur, that all the functions ordinarily esteemed essential to this process in the early part of life, should obtain, when it takes place after the menses have ceased? Now, a healthy menstrual action is a *sine qua non*, in the earlier parts of life to this process, it would seem then to be indispensable at the latter period; and where impregnation has obtained, we cannot well question that it was preceded by this action.

The period at which the menses make their appearance, is various ; it is much influenced by constitution, climate, and mode of life. As a general rule, it takes place at puberty; or that period when the female is capable of propagating her species; and this period varies as climate may differ. They constantly, however, keep pace with the developement of the body ; where this is rapid, they will appear proportionally earlier; where this process is slower, they will appear later: but whenever the menses appear as regular evacuations, they mark the period of puberty; thus, in hot countries, women commence to menstruate at eight or nine years of age, and are not unfrequently mothers at ten.

In the more northern regions, as in Lapland, &c. this evacuation is generally delayed, until the female has attained her eighteenth, or nineteenth year; in the temperate latitudes the average period will be found from the fourteenth to the sixteenth year. A difference will nevertheless be found, in the women who may reside in cities, and in those who dwell in the country of each respective portion of the globe. It may also be observed, that in cold countries, the women continue to menstruate for a longer period than in warm; and

as a general rule, it will be found, they are obnoxious to this discharge, double the period that elapses before it commences. Thus, women who have not this discharge until eighteen, will be found to have it until beyond fifty; those who commence at fourteen or fifteen, will leave off at about forty-five; those who begin so early as eight or nine, will have it cease at twenty-five or six.

There are, however, a number of curious exceptions to these general rules; they consist in the precocious appearance, and unusual protraction of the menses. HALLER, VAN SWIETEN, &c. give instances of each kind. I have seen several cases where this discharge was regularly continued until the fifty-fourth or fifth year.

This evacuation rarely fails to be announced by a variety of symptoms of greater or less severity, or danger; especially, among girls who have been delicately and luxuriously brought up; and thus having their nervous system rendered morbidly sensible or vibratile, a great variety of nervous symptoms, as they are called, precede the eruption of the menses; such as ringing of the ears; a sense of suffocation; palpitation of the heart; starting from slight and sudden noises; precarious, and whimsical appetite; loathings and cravings; convulsive twitchings; convulsions; chorea sancti viti, &c. &c. all of which are sometimes instantly relieved by a trifling discharge from the vagina, and this not necessarily coloured.

The last mentioned circumstance, must have been observed by every attentive practitioner, who may have had charge of females; and it is one worthy of note, as it goes to confirm, what has been advanced above, of the identity of the action, which produces these fluids, though so different in their appearance.

The vascular system is sometimes also much disturbed; we often witness determinations of blood to various parts of the body; as to the head; the lungs; the mammæ; the stomach and bowels, &c. for the relief of which, we are obliged to abstract blood, and employ other remedies if a kindly discharge from the uterus, does not quickly tranquilize the disturbed, and embarrassed circulation.

Sometimes the inconveniences are confined to the genital system—in such cases, a sense of weight; bearing down; ardor urinæ; pain in the region of the uterus, &c. are experienced; all of which, for the most part, announce the approaching discharge.

It is at this period also, that nature perfects her work, both as regards developement, and proportion; it is the period of the most perfect beauty, of which the female is susceptible; it is the one at which the moral changes are not less remarkable, than the physical: it is a moment of all others, the most replete with consequences to the inexperienced and confiding female.

At this period a great variety of interesting and curious phenomena present themselves; the voice is found to change; the neck and throat to increase in size, and to become more symmetrical; the mammæ to swell; the nipple to protrude; the chest to expand; the eyes to acquire intelligence, and an increase of brilliancy; in a word, a new being almost, is created.

The quantity of fluid expended at a menstruous period differs in different individuals; with girls who precociously menstruate, the quantity is in general smaller, and the returns less regular. Climate exerts an influence upon the quantity discharged, as well as upon the periods at which this evacuation shall commence. Thus, in the equatorial and more northern regions, it is less than in the more temperate climates.*

A variety of causes, independent of climate, are said to have the power of increasing the menstrual discharge; as all circumstances suited to increase the activity of the system; and thus tend to its more hasty developement. Such are the passions of the mind frequently indulged in, as anger and joy, a too stimulating diet, rendered so by either spices or spirits of any kind. All such as would have a tendency to produce a plethora of the uterus, and thus increasing its sensibility; as the frequent use of foot baths, foot stoves, &c.

* Gardien, p. 227.

all such as excite a pruriency of the imagination; and lastly, those which augment the quantity of blood; as too full a diet, especially chocolate as a constant article of food; great indulgence in feather beds, with a want of sufficient exercise.

It would be difficult to ascertain the exact quantity evacuated at each period, as it cannot be well subjected to measurement; hence the discrepancy upon this subject. HIPPOCRATES set it down at twenty ounces; there can be no doubt but this is very much overrated; at an average from four to six ounces may be considered as the proper mean. It usually employs from three to six days for its evacuation, and for the most part is extremely regular in its returns. I know a number of females who can tell not only the day on which it will return, but even indicate the hour at which it shall show itself. With other females, however, it is less regular; but it rarely exceeds the twenty-eighth day with women who are in good health; if we except, when it approaches the period for its final cessation.

When the time approaches at which this evacuation is to cease, agreeably to the arrangement of nature, this flux becomes more desultory, both as regards the periods of return and the quantity of fluid eliminated. The discharge may return every two or three weeks, or it may procrastinate until the fifth or sixth week, or sometimes even longer; and instead of the four or five ounces which were wont to be effused, twenty, or even more may be evacuated. But it must be remarked that when the quantity becomes thus excessive, it is not a genuine menstruous product that is poured out—for this process is now accompanied by a true hæmorrhage, as is evinced by the expulsion of coagula.

From the last expression it may be collected, that I consider the menstruous fluid not as a pure or unmodified blood: I shall therefore state the reasons for this belief. “1st. Its colour is between the arterial and venal blood; being less brilliant than the former, and more florid than the latter. 2d. It never separates into parts; blood drawn or evacuated from any other part of a healthy body does separate in a

short time into its component parts. 3d. It never coagulates, though kept for years; while other blood, when free from disease, quickly does when exposed to the influence of the air. 4th. Its odour is remarkably distinct from that of the circulating mass; and it is less disposed to putrefaction."

It has been supposed, because the menstuous fluid does not coagulate, that it contains no fibrin; but it is more probable that this substance has been deprived of its power of coagulation, by being subjected to the influence of the vessels of the secerning portion of the uterus. This opinion is strengthened by recurring to the fact that the coagulating lymph always accompanies the red globules, wherever the latter may be found.

The menstuous blood may therefore be considered as a substance differing from the blood of the circulating mass in at least two remarkable properties; namely, in not coagulating; and second, in not separating into parts. It is true, there are many of high authority, who declare a contrary belief; Hippocrates declared it to be pure blood; similar to that of a victim, if the victim be in health; and this opinion has been handed down to the present day, without inquiry or dispute.

If mere blood were evacuated from the uterus at the menstrual periods, it would be strictly speaking an hæmorrhage; but that this is not the case, the whole phenomena of this process seem to declare. I have stated above, some reasons for my disbelief on this point, and shall now add, that had this operation consisted in the mere evacuation of unchanged blood, it would be attended by precisely the same inconveniences as almost always attend hæmorrhage from this part; namely, pain of an alternate kind, arising from the contractions of the uterus to expel coagula, which are too apt to form, and require the efforts of the uterus to expel them.

It may also be added, that in cases of imperforate hymen, the accumulated menstuous blood remains fluid, though a little thickened; and when relieved by an operation from its confinement, it is found to flow with considerable freedom from the orifice made for this purpose. No coagula present themselves, as would be the case, were this fluid true blood.

That the menstruous blood may contain all the constituent parts of common blood, I am not at present about to dispute, since I am not prepared to say in how many or how few details it may differ upon a strict analysis: it is sufficient for my present purpose to state, that it must experience some change during its elimination, as it is uniformly when in a healthy state deprived of the property of coagulation.

This last circumstance, from its uniformity, must have a meaning; I have just stated what I believe to be the probable intention of this change, namely, the comfort of the woman; but it may have a higher object; it may be essential to the propagation of our species. Certain it is, the sensible properties of this evacuation differ in certain individuals; and it is found, that when this discharge is very profuse; when many coagula are thrown off; when it is thin and pink coloured; when very black and resembling in some measure coffee-grounds; or when it is discharged with pain and accompanied by a whitish membrane, the women so circumstanced are barren, so far as my observations have extended.

As I do not believe this discharge to be a mere exudation from the internal surface of the uterus, and constituting a species of hæmorrhage, it is proper to declare, what I believe to be its real nature. I look upon this discharge to be a genuine secretion, from the mucous membrane with which the cavity of the uterus is lined; since it would be difficult to explain by any other process, than some peculiar mode of arterial action, the change which evidently is wrought upon the coagulating lymph; and we know that this substance is in many instances under the immediate influence of this set of vessels, as is proved in cases of scurvy; death from a blow on the stomach; a certain stage of yellow fever; small pox, &c.

In these cases the blood loses the power of coagulation by some peculiar arterial action; and this sometimes in a very short lapse of time. The same effect is produced by the uterine arteries during the menstrual process; and this process may with much propriety be termed a secretory process.

The menstrual fluid has been considered as a secretory product for very many years, and this opinion is now generally

adopted by many of the physiologists of the present day: thus HALLER, BORDEU, SANDERS, JOHN HUNTER, &c. called menstruation without hesitation a secretion. Who first broached this doctrine, is perhaps at the present day impossible to say. The credit has been given to each of the gentlemen just named, but not with justice as I shall show immediately.

In Rammazini's "*Essai sur les maladies des artisans*, par Fourcroy," p. 214, we find the following passages; "*il y a tout lieu de croire que le sang des regles a quelque qualité maligne et cachée; et on lui a donné à juste titre le nom de secretion et excretion.*" In this passage the word secretion appears to be familiarly employed, and one most probably used in common parlance among the medical men of the day.

Fourcroy, the translator of this work from the Latin, in a note to a part of the paragraph from which the above extract is taken, says, "*Rien cependant n'étoit plus naturel, sans avoir recours aux phénomènes chimiques, que de concevoir le flux des regles, comme une secretion, qui a son organe, ses périodes réglées, sa marche et son département, ainsi que toutes les autres sécrétions.*" p. 216.

From these extracts it is evident, that neither of the gentlemen above mentioned, is justly entitled to the honour of the suggestion: for the first edition of Rammazini's work was published in 1700. Indeed, it would seem, from the manner in which it is mentioned in this work, that the doctrine was not new at that time: at least there is no claim laid by Rammazini for originality.

I consider the uterus to be lined with a membrane of the mucous class, as taught by BICHAT and others, notwithstanding its existence has been lately called in question. In examining the latest authority on this subject within my reach, I find it doubtfully mentioned by MECKEL, in his *Manuel d'Anatomie*, as translated by JOURDAN and BRESCHET, vol. iii. p. 611. He says—

"La face interne de la matrice est tapissée par une membrane muqueuse rougeâtre, presque lisse, garnie seulement de villosités très fines, que se continue supérieurement, et de chaque côte, avec celles des trompes, inférieurement avec

celle du vagin. Dans l'état frais, cette membrane adhère d'une manière si intime à la substance fibreuse sous-jacente, qu'on ne peut l'en isoler, quoique sa structure annonce assez qu'elle appartient à la classe des membranes muqueuses; mais, avec du soin et de précautions, on parvient à en détacher quelques lambeaux, après avoir soumis la matrice à la macération."

"Son union intime avec le reste de la substance de la matrice a fait révoquer son existence en doute par plusieurs anatomistes."*

It is truly a matter of surprise, that it should be questioned for an instant, that the uterus is lined with a membrane, and this of the mucous kind; for neither the authority of MORGAGNI, BOERHAAVE, nor HALLER, all of whom CHAUSSIER has called to his aid to support the opinion, can possibly alter the structure of this part; a membrane is obvious to the eye, and when macerated, tangible to the fingers; and the nature of its discharges proves it to be a mucous membrane. It has been thought by some to be of a deciduous kind, and regularly cast off after each delivery, or even after abortions. There is much reason from the appearances of this part after delivery, to countenance this opinion—it however yet wants confirmation. But if this suggestion were admitted in its fullest extent, it would not militate against the presumption that it is a mucous membrane. For this membrane must be considered as possessing a considerable variety of function under particular circumstances: for mucous membranes are made to throw out, not only mucus, but pus, and even modifications of these substances.

It is, in truth, most intimately connected with the substance of the uterus immediately beneath it, and cannot perhaps ever

* "C'est l'opinion de Chaussier et de Ribes. Me. Boivin dit aussi n'avoir jamais aperçu cette membrane muqueuse, et pense que la face interne de la matrice n'est formée que par l'extrémité des vaisseaux exhalans qui s'y ouvrent. Une pareille explication est très vague, sinon même tout à fait inintelligible. L'Analogie, quand il n'y aurait pas d'autre motif que celui-là, ne permettrait pas de douter que la face interne de la matrice ne soit tapissée par une membrane."—*Note des traducteurs.*

be separated from it in the recent and sound state. But this only proves the closeness of its connection, and not its want of existence. Indeed, this strict union strikes me as highly useful in the œconomy of gestation: for were it loosely and uncertainly attached to the substance of the uterus, much inconvenience would result from the great distension this organ must undergo during the advancement of pregnancy.

Upon opening an unimpregnated uterus, and viewing the cavity it presents, we are immediately struck with the smoothness and polish of its surface: now, it may be proper to ask, what is this whitish and shining surface which thus presents itself? Can it be the extremities of the exhalents of Mme. Boivin? or the proper substance of the uterus as insisted on by Chaussier? Will an arrangement like that of Mme. Boivin, or Messrs. Chaussier and Ribes, secrete a mucous fluid; yield a fluor albus; or render a pus? Or in other words, will any other surface, save a mucous surface, display the phenomena of a confessed mucous membrane?

This membrane is denied to exist, because it cannot be separated from the substance of the uterus; and when it is urged that this can be effected by maceration or incipient putrefaction, they declare the separated portion to be no membrane, but some accidental concretion. It is said by Chaussier and Ribes, that the membrane which lines the vagina, terminates at the orifice of the uterus.

The quality of the menstrual blood has been a matter of much dispute with many of the writers upon this subject. It is by some considered perfectly innoxious, and by others as extremely deleterious. The ancients attributed to it the most baleful effects upon both living and inanimate matter. Thus PLINY declares the approach of a menstruating woman will turn new wine sour, render fruit trees sterile, or even destroy them; burn up the seeds and fruit of a garden if she should sit near them, &c. &c. While FALLOPIUS, RODRIQUE A CASTRO, BAILLOU,* &c. assure us, in its natural state, that it is perfectly free from all bad qualities. LA MOTTE, though

* Rammazini, p. 214.

apparently willing to remove the imputation urged against the menstrual blood by Pliny and others, cannot altogether divest himself of the prejudices of the times and of education. He seems disposed, however, to compromise between the force of opposing facts, which he confesses daily to have observed, and the influence of names and of instruction, by relating with great naiveté the following story.

After having timidly attempted the refutation of Pliny and others, "that the menstrual blood is most injurious," he says, "But I see sufficient to make me apprehend the presence of a woman in this situation, especially if she have red hair. I had a servant of this kind. One day I gave a breakfast to a number of my friends; white wine is the kind which is usually preferred upon these occasions; especially if you intend to eat oysters; and mine was excellent; and was drawn by this servant. My friends expatiated upon the goodness of my wine. The next day I breakfasted in like manner with one of the friends who had been with me; but he had no wine but red; I immediately sent for some of my white wine; but it was found so spoiled as to serve for nothing but vinegar. The same servant aided in salting some pork, which was afterwards found to be spoiled; though the part which was salted by another person in another cellar, was perfectly good." He adds, with his usual candour, "but I cannot say whether this may not have been the fault of the salt."*

It must be admitted that this secretion is acrid occasionally, and will leave traces of its acrimony upon the parts over which it flows; but when this happens it must be recollected that this discharge is in a deranged state, and no longer a pure menstruous evacuation. This occurs more frequently towards the decline of life; and especially if there be a tendency to cancer. It must, however, be recollected that even in such instances, the general system is not contaminated in the commencement of this condition of the uterus; the acrimony of the discharge results from an altered action of the vessels concerned in the process of elimination and exposure to air,

and it is not until portions of this discharge is absorbed, or until the system at large sympathizes with these diseased parts, that any evidence of the uterine affection is betrayed by the skin or other parts becoming diseased.

The idea of the impurity of the menstruous blood took its rise from the supposition, that this discharge was intended to relieve the woman from certain noxious humours generated in her body, from her sedentary habits, as well as other causes. Hence, so much dread was entertained, when this evacuation was interrupted from any other cause than pregnancy. But no alarm was excited, when this flux was arrested by gestation; as the fœtus and secundines employed it they said for their own purposes.

This opinion they thought supported by the appearance of certain eruptions upon various parts of the body when this discharge was suppressed, and which yielded only to such remedies, as restored this evacuation. But this fact, at the present day, would be explained upon very different views of the animal œconomy; and it will no longer serve to support the notion of the deleterious effects of suppressed menses.

It was also supposed, that hæmorrhagies from other parts of the body must be a necessary consequence of the uterus failing to secrete the menstruous blood; and we find in the books of medicine, very many instances purporting to be illustrative of this hypothesis. I am not prepared to say that such a thing never existed;* but I can with the most entire confidence de-

* Gardien relates a curious case, upon the authority of Mr. Brulé, which he considers as a proof of the diversion of the menstrual action, but which I cannot regard but as a periodical hæmorrhage: and altogether analogous to the bleeding hæmorrhoids, which frequently in females, observe as much regularity when the menses are regular as when they may be absent.

“*First deviation.*” “The menses were suppressed in a young girl, whose life had been a series of illnesses up to that moment. She became regular after this; for six months the discharge was evacuated from little wounds in the legs, occasioned by the breaking of some small vesicles.”

“*Second deviation.*” “There appeared upon the left arm some vesicles or pimples, (boutons,) which yielded blood at the menstrual period during a year.”

clare, I never witnessed such an example; and when they occur, must be considered, if entitled to any weight, but as exceptions to the rule. Have not instances occurred of foetuses being found in the ovaria of virgins.

At the present day I believe, no one will imagine, that he observes a woman's health to be worse, as a regular occurrence, as she approaches the period when she looks for her catamenial flow; nor imagine he sees an improvement, after this period has passed over: yet it would seem essential to the support of this conjecture, that both one and the other, should follow. Nor is there much reliance to be placed upon the existence of the "menstrual fever" of the older writers, though supported by the later authority of Bordeu. That a fever may occasionally be perceived at such periods, I have no reason to deny; but that it is an attendant upon this discharge as one of its phenomena, there is much cause to doubt. When this opinion arose, it was the order of the day to be minute; and an accidental circumstance was recorded, as an essential character.

"*Third deviation.*" "This was succeeded by a whitflow on the left thumb and a chap upon the first phalanx: and at the end of two months the menstrual blood flowed periodically from this part for six months."

"*Fourth deviation.*" "The girl is now attacked by an erysipelas in the face and the left eye, which terminated by two openings, one at the angle with the nose and the other in the middle of the upper eye-lid: these two openings yielded an evacuation periodically for two years; it then ceased from these parts to be voided by the left thumb."

"*Fifth deviation.*" "An erysipelas now showed itself upon the abdomen, attended by a great itching; the navel was very painful, and for five months the blood flowed regularly from this part at each menstrual period."

"*Sixth deviation.*" "A slight accident happened to the left internal malleolus of the ankle, and the blood flowed from this part for four months."

"*Seventh deviation.*" "An acute pain was felt in the left ear; a discharge took place from this part for two months."

"When the blood did not flow from any determinate spot it would vent itself by an hæmorrhage from the nose, or from the stomach by vomitings, preceded by head-aches and giddiness." *Traité complet d'accouchemens, &c.* vol. I. p. 239.

ART. VI. *A Sketch of the most remarkable Diseases of the Negroes of the Southern States, with an account of the method of treating them, accompanied by physiological observations.*

By P. TIDYMAN, M. D.

THE black population has always been considered of great importance to the agricultural prosperity of the United States, and closely connected with the general welfare of the nation; we therefore feel an interest in providing as much as possible for their health and comfort. The attention of physicians cannot be too much directed to the examination of those diseases to which the blacks are commonly subject. We must by a careful investigation endeavour to trace the physical peculiarities which are ascribed to the Æthiopian, and serve to distinguish him from the white man. The difference of colour has been a subject of contention among philosophers. There are certain indelible marks which form the characteristic features of the sable sons of Africa that cannot be mistaken; it is now generally granted that the theory so long and obstinately maintained of the variety of complexion being produced by climate, (although plausible,) has vanished, to make room for a full conviction that the colour of the human skin depends solely on those laws of nature which owe their origin to certain innate principles, not yet well understood by anatomists and physiologists. The colour of the skin in the negro gives him a decided advantage over the white, by enabling him to endure the scorching heat of the sun with less suffering; whilst he is protected by the very nature of his constitution from the unhealthiness of hot climates, which are so inimical to the whites, especially among those who may be necessitated to labour in low swampy situations, and inhale a deleterious atmosphere. Under such circumstances, negroes are seen working with cheerfulness and alacrity, when the white labourer would become languid and sink from the effects of a torrid sun. The experiments of Sir EVERARD HOME have clearly proved the resistance of the black colour to the radiant heat of the sun's rays, whilst a white skin soon becomes sensibly affected. In his first experiment in August,

1820, he remarks, "I exposed the back of my hand to the sun, at twelve o'clock, with a thermometer attached to it, another thermometer being placed upon a table with the same exposure. That on my hand stood at 90° , the other at 102° . In forty-five minutes blisters rose, and coagulable lymph was exuded, which became vascular under my eye; the pain was very severe." In experiment the second, he observes, "I exposed my face, my eye-lids, and the back of my hand, to water heated to 120° . In a few minutes they became painful; and when the heat was further increased, I could not bear it." He says, in his third experiment, "I exposed the backs of my two hands to the sun's rays, with a thermometer upon each; the one hand was uncovered, the other had a covering of black cloth, under which the ball of the thermometer was placed—after ten minutes, the degree of heat of each thermometer was marked, and the appearance on the skin examined. This was repeated at three different times.

First time, the thermom. under the cloth 91° the other 85°

Second time, - - - - - 94 - - 91

Third time, - - - - - 106 - - 98

In every one of these trials the exposed skin was scorched; the other had not suffered in the slightest degree; there was no appearance of perspiration on either hand." Experiment 4th.—"The back of a negro's hand was exposed to the sun with a thermometer upon it, the skin had not suffered in the least." Sir Everard continued his interesting observations in the following experiments. Experiment 5th. "During the eclipse of the sun of September 7, 1820, I exposed the back of my hand to the rays concentrated by a double lens of half an inch focus at three different periods of the eclipse, when the heat of the thermometer was 75° , that is, from 47 to 57 minutes past 1 o'clock, the concentrated rays felt warm, but gave no pain, although applied for ten minutes, when the heat to a thermometer was 79° at 15 minutes past 2 o'clock, the concentrated rays felt warm, but gave no pain, in five minutes blistered the skin and produced spots and coagulable lymph. When the heat to a thermometer was 82° at half past two o'clock, the concentrated rays in three minutes gave

pain, in four the part was blistered, and the pain could no longer be endured. Experiment 6th. "On the 8th of September, 1820, at eleven o'clock, the heat in the sun 90° , the concentrated rays applied to my naked arm, produced a vesicle. This experiment was repeated when the heat was 84° , and in seven minutes a blister formed on the arm." Experiment 7th. "September 9th, at eleven o'clock the thermometer in the sun at 90° , the concentrated rays applied to a piece of black kerseymere cloth made tight round my arm twelve minutes, gave no real pain and left no impressions whatever on the skin, although the nap of the cloth had been destroyed. This experiment was repeated with white kerseymere, the heat at 86° ; in fifteen minutes a blister was formed and coagulable lymph thrown out, which had become vascular. The same experiment was made with a white handkerchief loose upon the hand, the heat 83° ; in fifteen minutes an inflammatory blush was produced over a surface of several inches extent, which almost immediately disappeared on withdrawing the hand from the sun's rays." Experiment 8th. "September 12th, the sun's heat at noon 85° ; the concentrated rays applied to the back of the hand of a negro from Grenada for fifteen minutes produced no visible effect; at the first moment he felt a stab going inward, but that went off, and afterwards he had no pain."

Thus it is clearly proved by the experiments of Sir EVERARD HOME, that the black skin, when exposed to the heat of the sun's rays, suffers less from its scorching influence than the white, and it is accounted for by Sir HUMPHREY DAVY on the most probable and rational principle, "that the radiant heat in the sun's rays was absorbed by the black surface, and converted into sensible heat." The capability which the Africans and their descendants possess to resist the sun's heat from the colour of their skin, is no less wonderful than the constitutional peculiarities with which nature has provided them to bear corporal labour with comparative ease to white men under a burning sun in the most unhealthy climates.

The late estimable and learned Dr. CURRIE of Liverpool,

has remarked, "that the perspirable matter of the European does not appear to be well fitted to the torrid zone; consisting nearly of pure lymph, it is speedily dissipated by evaporation, and without a profuse discharge, the surface cannot be kept moist and cool. On the other hand, the profusion of the discharge debilitates the system and soon renders the cold of evaporation dangerous, especially when this evaporation is increased by an accidental breeze, or the effect of the cold promoted by rest after fatigue. The negro, fitted by nature to the climate, is less accessible to the stimulus of heat, and his unctuous sweat less easily dissipated, keeping his skin uniformly moist, sustains a more uniform perspiration as well as evaporation, and guards the system against the waste and danger of profuse sweating under fatigue, as well as the other consequences already explained. The pungent and stimulating quality of his perspirable matter will promote these salutary effects." By means then, of a healthy and free perspiration, the superabundant caloric of the negro is happily thrown off by evaporation, and his system greatly shielded from the action of disease. In the words of the illustrious BLUMENBACH, "*muli facile dissolubilis habitum præ se fert, et in Æthiopibus utpote quibus crassior est, a cuticula æque ac a corio passim integrum separari et genuinæ, propria membranulæ forma exhiberi potest.*"

The secretion from the skin of some particular tribes of Africans and their descendants is often very offensive to the olfactory nerves, and to some persons causes nausea. In the fifteenth number of this Journal, the following remarks are taken from an ingenious essay on the fascinating power of the serpent, by Dr. POVALL, of Philadelphia. "I have seen a gentleman lose the power of volition and ultimately faint, in consequence of smelling that peculiar odour which is emitted from the bodies of negroes; he adds that professional duty often called this gentleman to a near approach of persons of this description—and he assured me that whenever his olfactories were assailed with that most disagreeable appendage of the African race, he invariably lost the power of

voluntary motion, and on several occasions swooned from excessive sickness."

It is a fact, sufficiently established by physiologists, that the human complexion is derived from the colouring matter of the rete mucosum, the greatest sceptic must relinquish his prejudices and be convinced that climate has no agency in effecting a radical change, for nature has placed a stamp on the human species that none but nature's God can vary.

The varieties of colour in plants do not depend on the influence of climate, but on the colouring matter infused into the bark and leaves. "Different flowers, (says Lord KAIMES,) derive their colour from nature, and preserve the same colour in every climate. What reason is there to believe that climate should have greater influence on the colour of men than on flowers?" We are too apt to be misled by appearances, and to mistake the pallid and sallow hue of disease for the pure and untainted offspring of nature; those who adopt a popular theory often feel reluctant to abandon it, until driven from their ground by force of the most incontrovertible facts, and doctrines, however preposterous and chimerical, are sometimes supported by such ingenuity and plausible reasoning as to require much good logic to refute them.

It is evident that the effects of heat and cold will produce a correspondent impression on the human system; and that a partial and temporary change can be made. ADAIR, in his *History of the Aborigines of America* remarks, "that the hotter or colder the climate is where the Indians have long resided, the greater proportion have they of either the red or white colour." He further remarks, that "many incidents and observations led him to believe that the Indian colour is not natural, but that the external difference between them and the whites proceeds entirely from their customs and method of living, and not from any inherent spring of nature." The hypothesis of Mr. Adair is unsupported by any good authority, and may be considered as vague and speculative.

The Indians of Canada, Georgia, and the Mississippi, are

of the same complexion. Indian children have been taken from their parents at a very early age and carried to a distance of many hundred miles from the places of their nativity, and have been reared and educated among the whites, without undergoing the slightest alteration in their complexion; not so with their minds, which soon become capable of admitting all those impressions which are derived from education and polished society; but when released from the restraint of those ties which connect us to the civilized world, they eagerly seek their respective tribes, and adopt such habits and pursuits as are characteristic of their savage mode of life.

Lord Kaimes, with that perspicuity which has always distinguished his writings, informs us "there have been four complete generations of negroes in Pennsylvania—and without any sensible change of colour, they continued jet black as originally. The Moors in Hindostan retain their natural colour, though transplanted there more than three centuries ago, and the Mogul family continue white like their ancestors the Tartars, though they have reigned in Hindostan above four centuries."

I close these introductory observations with some instances of longevity among the negroes and a comparative account of the mortality among the free and slave population. In the state of South Carolina, among the numerous large and well settled plantations, there are many very old negroes, some of whom have attained the age of eighty or ninety; the increase on healthy and well managed estates is very great indeed; the number is doubled every twenty-five years; this is not to be wondered at when we consider the humane treatment these people receive from good owners; their wants in every respect are amply provided for, and their situation rendered infinitely more comfortable than the majority of the free blacks in any quarter of the United States. Matrimony is much encouraged among the slaves, and celibacy is extremely rare. The mortality among them in the southern states, both in the country and the cities is by no means as great as it was twenty years ago, and the ratio of deaths compared to the free negro

population in the southern cities, is much greater among the free blacks; in some years as three to one of the slaves, (allowing an equal population.) In Charleston it will be found that those years in which the yellow fever has prevailed, the number of deaths among the whites exceeds that of the blacks by several hundred. According to the bills of mortality of the city of Baltimore, published in 1825, the deaths from the free black population amounted to three hundred and sixty-eight; and only forty-eight slaves during a year from the first of January 1824, to the first of January 1825. It is stated that the free black population of Baltimore in 1820, amounted to four thousand three hundred and fifty-seven, and slaves ten thousand two hundred and ninety-four.*

Having heretofore offered some remarks on the colour of the skin, and advanced the best authorities to aid me in refuting the opinions which are founded on a belief that the colour of the human skin is dependant on climate, I shall revert to the subject in order to state what is now considered as well established by physiologists, that the colour of the human skin is derived from the rete mucosum. In Europeans it is transparent, in mulattoes it is brown, and in negroes black. Mr. SHELDON thinks that "the colour of the rete mucosum depends much on the blood, which he says is darker in the Africans than the Europeans. The colour of the skin frequently undergoes a change from disease in utero or after birth, from leprosy or other cuticular diseases. I have seen the offspring of black parents with the skin of a sickly and disgusting paleness, but with a sandy coloured, woolly head, and the true negro features—a subject of this description is commonly called a *white negro*. I remember to have seen many years ago in London; a negro whose body and arms were covered with white spots; this motley animal, the child of black parents, must have derived the white marks from disease. Mr. WHITE of Manchester, has justly remarked, that a disease of the rete mucosum and alteration of the vessels may take place so as to refuse admission to the colouring matter.

* See the August number of the Philadelphia Journal of the Medical and Physical Sciences for 1825.

He further observes that the reason why all children both of whites and blacks, and of every intermediate shade are all born of a ruddy colour, is owing to the exceeding thinness and transparency of the cuticle and rete mucosum. The latter not having yet acquired any colour, shows through it the colour of the cutis vera or true skin, which is an integument very full of blood-vessels, and therefore nearly of the colour of blood itself. He has very accurately arranged the different shades of colour in the following order:—

The offspring of a

White and Black	is denominated a Mulatto.
White and Mulatto	a Quadroon.
Black and Mulatto	a Samboe.
White and Quadroon	a Quinteroon.
Black and Samboe	a Mestize.
White and Quinteroon	a reputed White.

Much valuable information is contained in Mr. White's excellent work on the gradation of man. Mr. White states that he has examined as many as fifty negroes, men, women, and children, born in Liverpool, and clothed and educated as the other natives of that town, and he is of opinion, that there exists a characteristic difference in the bony system, betwixt the European and African. The observations of the learned author are founded on much experience, and the accuracy of his anatomical researches entitle him to great encomium; I have, however, seen many Africans and their descendants, both male and female, whose regular features and figure would bear the test of strict scrutiny, and be considered by the unprejudiced as handsome. The cranium of the negro is commonly thicker than in the white subject, and it is the opinion of some anatomists that the brain and nerves are thicker.

Professor SOEMMERING, in his essay on the comparative anatomy of the negro and European, observes, "that the skull of the negro viewed in front, appears to be compressed at the sides, especially at the upper part, its cavity seems to be straighter, and the parietal bones smaller in every dimension than in European skulls;" he says, "that in some of

the finest specimens of mummies, (according to the authority of Blumenbach,) the head is still more compressed than in the negro;" he also observes, "that Blumenbach regards the protuberance of the jaw bones as the most distinguishing feature in the negro's countenance. There are certain peculiarities of constitution, which distinguish the negro in a remarkable manner from the white, particularly in relation to the secretions. Negroes certainly secrete less by the kidneys than white persons—this may be easily accounted for by their secreting more by the skin. Negro women, I am inclined to believe, menstruate less than white women. Cases of menorrhagia are not very common among them, but cases of amenorrhœa are very prevalent. The African race are very susceptible of cold, and are as incapable of enduring a northern climate, as a white population are of supporting the torrid sun of Africa. The blacks secrete much from the salivary glands, but this is chiefly excited by their fondness for tobacco, which they smoke or chew to great excess. I am disposed to think that the general use of this pernicious plant, added to a want of cleanliness, is productive of serious injury both to the gums and teeth. From the striking contrast which the appearance of teeth bear to the black skin, strangers are misled. I have had numerous opportunities of examining the teeth of negroes, and from all my observations, they doubtless decay more rapidly than those of white people, and in my opinion, not from any constitutional cause, but from want of proper care and the abuse of tobacco.

The nervous system of the negro certainly exhibits less sensibility and irritability than is generally witnessed among whites. In numerous cases of fever and a variety of diseases, I have been much surprised at the decided difference which has appeared in the nervous influence over the body. I have seen negroes submit to capital operations with less apparent suffering than white persons similarly situated, and I have known them with much composure and fortitude support the limb for the surgeon to amputate. Some of my medical friends in South Carolina have assured me, that in the course of their extensive practice among the blacks, they have inva-

riably found less nervous irritability among them than with their white patients. Mr. White, of Manchester, (England,) informs us that he has amputated the legs of negroes, who have themselves held the upper part of the limb. May it not be presumed, that the few cases of insanity to be met with among the negroes is owing to the absence of that morbid irritability which so commonly afflicts the nervous system of white persons of both sexes. Independent, however, of the foregoing considerations, it may be justly remarked that the minds of negroes are less disturbed by care, and among the slave population, where much vice and misery is generally supposed to prevail, instances of insanity are extremely rare, infinitely more so than among the free blacks. The slaves fare best, who, under the dominion of humane owners, who provide for their wants, and restrain them from committing excesses which impair their health, by exercising a mild but energetic authority.

I shall now proceed to the consideration of those diseases which most commonly prevail among negroes, and shall by a careful investigation, endeavour to show the importance of adopting the most simple method of treating them; their mode of living, constitution, and habits, all differ more or less from white people. With nature for our guide, we cannot be at a loss how to adapt our method of cure to the peculiar state of the case. That excellent writer, Professor DUGALD STEWART, in his "*Elements of the Philosophy of the Human Mind*," has justly remarked, "the idea of following nature in the treatment of diseases, an idea which I believe prevails more and more in the practice of every physician, in proportion as his views are enlarged by science, is founded not on hypothesis, but on one of the most general laws yet known with respect to the animal economy; and it implies an acknowledgment not only of the vanity of abstract theories, but of the limited province of human art."

The situations in the lowest and most unhealthy parts of the southern states, are considered during the summer and autumnal months as extremely inimical to the white inhabitants, but the blacks suffer little, and are generally exempt

from attack of intermittent and remittent bilious fevers, which prove so fatal to the white population, particularly Europeans. The extensive bodies of swamp lands, the immense quantity of stagnant water, and the rank state of vegetation, all give rise to most noxious exhalations highly prejudicial to human life. The "malaria," which is chiefly confined to the lower districts, loses its deleterious influence whenever it approaches the sea—or is rendered innoxious during continued rains accompanied by thunder. The baneful miasma, however, can only be destroyed by frost, which is generally welcomed by the suffering inhabitants as the messenger of health. Those who wish to escape from these inhospitable situations, on the approach of the summer months resort to the sea shore, on pine lands, which are considered safe.

The negroes who reside on large rice plantations and other places in the vicinity of stagnant water, generally enjoy through the hot months as good health as they would do if placed in the mountains. Intermittent fever, so hostile to the constitution of the white inhabitants, has no terror for the negro, who when attacked, requires but little medicine to rid him of this insidious enemy, and to secure him against a return. My usual mode of treatment, although perfectly simple and successful, must be known to every common practitioner. The moment the patient is visited by a chilly fit, it is proper to confine him to his bed and restore re-action as speedily as possible, to accomplish which bladders are filled with hot water and applied to the feet, or hot bricks or flannels made hot and frequently renewed—hot brandy and water may be given him to drink—or hot snake-root tea, to a pint of which is added forty or fifty drops of the spirit of ammonia. As soon as the fever follows, great care must be taken to promote perspiration by continuing the hot snake-root tea with the addition of twenty drops of antimonial wine, and an equal quantity of the spirit of nitrous ether in each cup. The *serpentaria virginiana* is usually employed on our plantations, and always with good effect; should the patient have much thirst, he may be allowed to drink freely of warm sage or balm tea acidulated with lemon or lime juice, the lemon grass also

makes a pleasant aromatic and refreshing beverage. When the fever has quitted him, his intestinal canal must be kept freely evacuated by small doses of the sulphate of magnesia: should a more efficient cathartic be required, then five or six grains of calomel combined with ten grains of rhubarb. As soon as the patient is in a state to use tonics, and a decided intermission will admit of it, the Peruvian bark may be given by cold infusion; an ounce may be mixed in a wine glass of French brandy, to which add forty drops of the spirit of ammonia—mix this in a pint of water, and after leaving it a sufficient time to macerate, give a wine glassful every hour—sometimes the bark of the *cornus florida* or dogwood, (called by Lunan, *piscidia*, from the intoxicating effect the juice produces upon fish,) is used, also the bark of the red oak tree.

In common cases, when the symptoms are slight, a decoction of the *marrubium* answers every purpose. Should the case appear in an aggravated form to justify a suspicion of its continuance, an emetic must be given an hour or two previous to the expected attack of ague; to produce an immediate operation, the tartrate of antimony, or sulphate of zinc, may be taken, but I prefer giving the antimonial wine and *ipecacuanha* united, as they generally act with sufficient effect, and are more safe when left to be administered by black nurses. Should one emetic be not effectual, it may be repeated on the expected return of the chilly fit; the *primæ viæ* must be kept free, and sudorifics persisted in.

There are many remedies which have been long known; such as the dogwood bark—the red oak—Sampson's snake-root, (*gentiana catesbei*), *carduus*, tar water, &c. but all which I have ever heard enumerated, yield in virtue and efficacy, to the genuine Peruvian bark. The *tela aranea* has frequently been given with various success, but this remedy is not more efficacious than the volatile alkali, a tea-spoonful of which combined with sixty drops of laudanum taken in a wine glass of water will frequently avert an attack of ague. I do not recommend the arsenical preparation, under the title of Fowler's solution to be used on our plantations, or yet is it necessary to use the preparations of the quinine and cincho-

nine, unless the stomach is in that state as to be incapable of bearing the bark in any other form. The cold bath, or cold affusion, which has been resorted to for many years past with great success in obstinate cases among white persons, is seldom or never required among the blacks; I have found in the course of my practice among them, that this disease, whether existing as a quotidian, tertian, or quartan, is generally easily subdued by the practice of emetics, sudorifies and cathartics, promptly and judiciously prescribed, with the aid of the bark and Sampson's snake-root in decoction, or if the bark in decoction be not sufficiently active, then a half of a drachm in powder with a tea-spoonful of brandy and twenty drops of spirit of ammonia may be mixt in a wine glass of water, and taken every hour through the day. The diet should be light and nutritious, and wine may be allowed, or a moderate quantity of brandy and water. The clothing of the patient should be warm, and every precaution taken to guard against a relapse—a flannel waistcoat should be worn next to the skin.

Remittent bilious fevers, so very prevalent in low marshy countries and in warm climates, do not much affect our negroes. The cases which occur are very few compared to the number that prevail in the autumnal months among the white inhabitants, who rarely escape if long exposed to an impure atmosphere in damp situations and to night air. The immediate cause which accelerates this fever is supposed to be a redundancy of acrid and vitiated bile passing into the stomach and duodenum, and producing a constant nausea and sense of heat and pain. Treatment consists in keeping the primæ viæ well evacuated by promoting a free perspiration, by applying epispastics if necessary to the epigastric region, and sinapisms to the legs, and after the fever has left the patient, by restoring the tone of the system by tonics, such as the bark and wine, columbo powder, or quassia; and the tepid bath may be used. If, during the existence of the fever, the skin continues hot and obstinately acrid, the legs and arms of the patient may be spunged with cold vinegar and water. Internally, the refrigerants should be a tea-spoonful of the acetate

of potash every two hours, to a half pint of water, or the bowels may be kept open by the super-tartrate of potash, orange juice, or lemonade may be allowed. The diet should be light and nutritive, and when the patient is in a state of convalescence, he may have rice gruel, sago, chicken water, Indian corn gruel, arrow root.

Typhus fever among the blacks generally, makes its appearance in the winter season and spring, and often proves very fatal. It originates in confined and impure situations, from the state of the atmosphere, which becomes charged with mephitic exhalations from animal and vegetable substance; also from the effluvia of human bodies crowded into badly ventilated apartments. The negroes under such unfavourable circumstances become apt subjects for the disease, particularly when a predisposition exists, and which is kept alive by great bodily fatigue, defective perspiration, scanty and unwholesome provision, want of rest, and a disregard of cleanliness. Can it be wondered at that from such a variety and combination of causes, victims should be found for the disease? We can readily believe that a poor debilitated frame must soon sink under so heavy a load of calamity, more especially if the mind is depressed. Dr. CULLEN has defined this fever in the following perspicuous lines:—

“Contagious disease; heat slightly increased; pulse small, weak, generally frequent; urine, little changed; functions of the brain very much disturbed; strength greatly diminished.”

“We cannot be too attentive to prophylactic treatment in relation to this disease, and therefore every precaution should be taken, such as well ventilated houses; cleanliness; clothing adapted to the season; wholesome and abundant food.* The system must not be debilitated by excessive labour, and care

* “The fatigues of the day place the body in a state peculiarly liable to be affected by any unusual impression, whether of atmospherical vicissitudes, or of ingesta or the passions. In the case of persons sleeping exposed to the night air, we have a reduction of temperature of many degrees; continued loss of heat by radiation from their bodies and the sudden application of humidity to a skin strongly excited by the sun during the day, and partially exhausted in function by prior profuse perspiration.”—*Dr. J. Bell, in Philad. Journ.*

should be taken that the negroes are not unnecessarily exposed to night air; all accumulation of vegetable and animal offal should be prevented. The floors should be often scoured, the houses annually white-washed, and the bedding frequently aired. Should the fever prevail and spread, notwithstanding all necessary measures of precaution, I would then strongly recommend an early removal to a more healthy situation if it can possibly be effected. The indications of cure should be to relieve the stomach from any uneasiness or oppression, to diminish the febrile heat, to remove any morbid irritability of the system. Should any irritability of the stomach exist with nausea and a disposition to vomit, an emetic may be administered. If the ipecacuanha and antimonial wine be not sufficiently active, then from five to ten grains of the sulphate of zinc may be dissolved in half a pint of water, and a table-spoonful given every ten minutes. The bowels should be kept open by the oleum ricini, by small doses of the sulphate of magnesia, or by Seidlitz powders, and by enemas; care must be taken not to prostrate the strength by the use of medicines of a too drastic nature. If the heat of the skin is great, and no appearance of perspiration, the body may be sponged with cold rum and water, or vinegar and water, particularly the legs and arms. The chamber must be properly ventilated so that the atmosphere be kept as pure as possible. If there is a sense of soreness of the epigastric region, a blister may be applied if the patient is in a comatose state, garlic cataplasms may be applied to the legs; perspiration promoted: and do not suffer the patient's strength to sink. Should the pulse be very feeble and great debility take place, give wine or brandy toddy; let twenty or thirty drops of the spirit of ammonia be given in a wine glass of water every two or three hours. The nourishment must be light and nutritious. As soon as the patient is free of fever and it is safe to use tonics, the bark should be given in the form of infusion combined with cinnamon. If the columbo is found to agree better with the stomach, give half a drachm every three or four hours in a glass of Madeira or Port wine. When typhus assumes an inflammatory character, and there

is a determination of blood to the brain, then adopt the anti-phlogistic plan of treatment; be careful, however, not to prostrate the strength too suddenly, and impede the operations of nature.

Having taken a cursory view of the usual mode of treating typhus among the negroes, I shall next proceed to describe an epidemic disease, which has for some years past prevailed in various parts of South Carolina and Georgia to an alarming extent, and proved fatal in numerous instances among the white inhabitants and blacks, but more particularly the latter. It generally makes its appearance with strong peripneumonic symptoms, varying in progress, assuming for a time a highly inflammatory character. This disease, by some of the physicians, has been termed pneumonia typhodes. The patient is usually attacked by a severe pain in the head, cough, difficult respiration, inflamed and watery eyes, sore throat, tongue highly inflamed at the edges, and a thick brown crust through the middle. Pulse small, quick, thrilling and sometimes irregular; strength totally prostrated; in some persons the tongue is red and dry; pulse hard, full, and throbbing. The symptoms in this disease are extremely variable; we must therefore be regulated in our practice by the different changes as they occur, and should not fail to be prompt and decided. The state of the tongue and pulse, the oppressed respiration, and general feelings of the patient, will all indicate the best mode of proceeding. We must be careful to discriminate, and not confound the symptoms with those of other diseases. So sudden is the attack, and so violent, that unless medical relief is quickly sought, the patient soon sinks. If the inflammatory state of the symptoms are such as to justify bleeding, no time should be lost, and from fifteen to twenty ounces of blood should be taken from the arm; the bowels must be relieved by castor oil, and kept freely open by small doses of the sulphate of soda in snake-root tea when necessary. Diaphoretics are of the utmost importance; the most efficacious and powerful is the James's powder, which may be given to the extent of ten grains, and the perspiration must be freely promoted by drinking copiously of the snake-root

tea, and the thirst may be allayed by sage tea or any other warm diluent. If there is much pain of the chest or stomach, apply a blister; if stupor prevails, apply sinapisms to the legs. Every means must be used for taking off the inflammatory diathesis by refrigerants; acidulated drinks may be given, and thirty or forty drops of the spirit of nitrous ether in a wine-glass of water every three hours during the day. When the patient is in a state of convalescence, he must be allowed a light and nutritious diet, with a little wine or porter, and the use of the Peruvian bark in decoction.

This epidemic oftener prevails in a dry season than any other, and early in the spring of the year; but in defiance of all calculation, epidemics are prevalent in the most healthy climates and situations, and baffle all conjecture as to the real cause of them. SYDENHAM remarks, "there are various general constitutions of years, that owe their origin neither to heat, cold, dryness, nor moisture; but rather depend upon a certain secret and inexplicable alteration in the bowels of the earth, whence the air becomes impregnated with such kinds of effluvia as subject the human body to particular distempers, so long as that kind of constitution prevails, which after a certain course of years declines and gives way to another." When we have a sultry and humid state of the atmosphere, and are in the vicinity of stagnant water, where we know that a decomposition of vegetable matter is constantly taking place, and that we are continually inhaling a mephitic vapour, it cannot, therefore, be a matter of surprise, that diseases arise under the most malignant form.

The origin of epidemics may sometimes be accounted for from some of the abovementioned causes, but when we find them to exist in those districts of countries bearing a high reputation for health, and possessing local advantages not to be surpassed by any situations on the globe, it becomes altogether surmise, and inexplicable as to what may have produced a calamity that no human power can foresee or avert. For several years past various parts of the most healthy states of the union have been subjected to epidemics in the summer and autumnal months. Intermittent and remittent

fevers, which until of late, were scarcely known among the natives, have raged most unmercifully in those counties which have been always considered exempt. The inhabitants of the mountains have had their full share of affliction, when the lowest and most unhealthy situations have been spared. It is not from any change the climate has undergone, or why should these fevers be confined only to particular sections of the most healthy states. It is in vain to seek for the real cause when such a diversity of seasons have appeared in the course of these few years. The theory we establish during the first year, and which we flatter ourselves has led to a discovery, is completely overturned by the following.

Epidemic diseases take a wide range, all countries are more or less subject to their visits; like the destroying locust, or the voracious caterpillar, they appear when least expected, and their stay, though often short, is yet very fatal. The epidemical fevers which raged with so much virulence during the summer and autumnal months of 1822 and 1823, extended through the most healthy counties of Pennsylvania, Virginia, and Maryland. Many very plausible reasons have been advanced as to their origin, but they are involved in conjecture and do not rest on any sure basis. If fevers prevail in those situations celebrated for the salubrity of the climate, it cannot be wondered at that they should be engendered in the populous districts of large cities, by a noxious atmosphere pervading the confined and impure streets, where the labouring class of people commonly reside. The negroes are generally the first victims of malignant fever, as they are usually crowded into the most miserable hovels, enjoying but few of the comforts; and frequently wanting the common necessities of life.

Dr. JACKSON has furnished, in the first volume of this Journal, a sad picture of the condition of a part of the black population of Philadelphia in 1820. A fever of a very malignant character prevailed among them in that year, and we may here insert in his own words the following interesting part of his relation of the disease. "In the month of May a fever of a very bilious and remittent character combined with typhoid symptoms appeared among the blacks. It continued

to spread during the months of June and July; in the latter part of which month it obtained its height, and was seen in its most aggravated forms. It declined through the month of August, and terminated as an epidemic in September. Between four and five hundred persons were affected with it. It attacked occasionally a few whites of the poorer class, but not more than about twenty or thirty on the whole were attacked with it. It was so generally confined to the blacks, that it acquired the name of the negro fever. It was preceded by a chill, and was accompanied with pain of the head, hot skin, tenderness of the epigastric region, irritability of the stomach and bilious vomitings. The tongue was moist and white at the beginning, but became dark, foul, and dry in a few days. The adnata was of a dusky hue, occasionally yellow, and often bloodshot. The patients were generally sleepless, and lay with their eyes wide open. The pulse was generally tense, but soft, yielding and frequent. In the last stages there was low delirium, great insensibility, tremors of the tongue, which was black or loaded with foul sordes, and a general collapse of the system. Lenient purgatives, demulcent and sub-acid drinks, and mercurial preparations combined with mild diaphoretics in the first stage; blisters, sudorifics and gentle stimulants, with nutritious diet in the second; wine, bark, serpentaria, milk punch, toddy and the like in the last stage, constituted the general treatment. The disease was quite manageable when placed under treatment in its commencement, and proper care could be taken of the patient. But most of those who were its subjects were in so wretched and miserable a condition, living in confined and crowded rooms, amidst every kind of filth and vile garbage; were persons generally of vagabond habits and lives, and were constantly surrounded by the debauched, vitious and intemperate; that it was impossible to afford them proper medical aid, unless removed to the public institutions. Few, indeed, could be induced to persevere in attendance amidst scenes of dissoluteness and misery, the senses constantly offended with the most nauseous exhalations and disgusting exhibitions, and finding prescriptions and advice almost wholly unattended

to. I have often met with instances where it was difficult, sometimes impossible, from want of sympathizing feeling even among the friends and relations of the sick, to induce them to go a few squares to obtain proper remedies. In the alms-house establishment the deaths were one in six. The chief theatres of this disease were the lanes, alleys, and courts inhabited by negroes in the southern and western parts of the city."

It is remarkable that the yellow fever, which has been so great a scourge to the populous cities in various quarters of the United States, and which may be considered as endemial in particular sections of country in the southern states, as well as the West India islands, should be confined to the white population. Nature has, with a special regard to the safety of the blacks, rendered them almost proof against the insidious attacks of this terrible disease. However liable mulattoes may be, in common with the whites, to yellow fever, it is certain that instances of negroes being infected are extremely rare. It becomes then a subject of investigation for the physiologist, and his time cannot be more usefully occupied, than by endeavouring to explain on what principle of the laws of nature this particular class of the human race are generally considered exempt from this species of fever, the ætiology of which is now so well understood, that it would be a work of supererogation for me to enter upon it. Among the most enlightened and experienced physicians, there can be but one opinion as to the origin of yellow fever—that it is not an imported or contagious disease, is a doctrine to which all discerning practitioners must readily assent; unfortunately for the inhabitants of our great cities from New York to New Orleans, there have been such woful and convincing proofs of its local origin, that any attempt at refutation might display the ingenuity of the author without much prospect of his gaining converts. It is undeniable, that during the summer and autumnal months, there will ever exist, under a tropical sun, more or less fear of yellow fever; this fatal enemy of the human race lurks in every stagnant pool and

foul drain—this terrible disease, for which there is no certain cure, is produced by a mephitic state of the atmosphere acted upon by solar influence. In the vicinity of foul docks, and amidst the narrow and filthy lanes of large cities, where accumulated heaps of putrid vegetable and animal matter are too frequently found, it is nourished by the co-operative agents of heat and moisture so necessary to call it into action. Under all these circumstances, the atmosphere is so thoroughly vitiated, that those unfortunate strangers who may be apt subjects for the disease, are almost as much in danger from inhaling the polluted air, as they would be on descending into the Grotto del Cane, and although life is not instantaneously extinguished, yet the protracted sufferings of the unhappy patient in a very few days too often terminates in death, showing how rapid is the work of pestilence! how frail the dependence on human aid!

It has been generally understood that the natives of Charleston and New Orleans, living continually in the atmosphere of those cities, are considered as secure from yellow fever; such also is the case in the West India islands. Children however are not always exempt, and the disease has been known in some seasons to break out in so virulent a form in Charleston, as to destroy adults who had resided for fifteen years in the city, and were supposed sufficiently acclimated to put them beyond the reach of the disease. Europeans, and Americans from the northern states, have been generally considered safe after a residence of six years; it is difficult, however, to fix a stated time; much must be left to chance—for it would be folly to say of the disease, as to the range it may take in a city, “thus far shalt thou go and no farther.” Much might be done by a well regulated police to arrest the progress of yellow fever, by exacting from the inhabitants of every street a rigid attention to cleanliness; it is to be regretted that the scavengers of our populous cities are often negligent of their duties. Although the disease cannot be averted by the most judicious precautions which may be resorted to, yet the well-timed efforts of a police would tend greatly to mitigate the evils arising from it—the necessity of

paving streets and attending to the state of the public sewers, and furnishing a plentiful supply of water, cannot be too forcibly impressed on the minds of those whose duty it is to guard the interests of their fellow citizens. No city in the world presents greater advantages in this respect than Philadelphia, where the enterprising and public-spirited inhabitants are enabled by means of their water-works, to convey a most abundant supply at any time through every part of it, thereby contributing greatly to the preservation of health. During the prevalence of the yellow fever in New Orleans or Charleston, and in other towns where the disease is strictly endemic, it is but seldom that we hear of negroes being attacked, whether they are strangers to the city or permanent inhabitants; occasionally a few cases may be discovered among them, but I believe where one patient is carried off by the disease, that three under skilful treatment recover; the fever with them yields more readily to medicine, and the symptoms are rarely so severe or inflammatory as to require bleeding.

The negro, when assailed by this disease, is buoyed up by hope, from a consciousness that few of his colour are destroyed by it. In reverting to the subject of contagion, I would remark, it has been long understood in the city of Charleston, that in all cases of yellow fever, whether in hospitals or private houses, no instances have ever occurred of the nurses or friends of the patients being infected by attending them. Strangers who reside about a mile from the city are generally considered beyond the reach of yellow fever; white inhabitants of the country are liable to the disease on visiting the city; the negroes however, usually escape. I will now take leave of this subject by quoting a few observations of Professor CHAPMAN, who remarks, "I have seen in our own almshouse, and in our penitentiary when much crowded, a low fever to arise, and apparently generated independently of any primary contagion, which has been taken as well by the permanent inhabitants as transient visitors. Every winter, in a greater or less degree, we have evidence of this in the almshouse. The physicians, the students, the nurses, the mana-

gers, by entering the wards at such times, have occasionally contracted the disease, and the spread of it has been wide among the patients. To this, however, it may be replied, that it was the vitiated atmosphere of the place, and not contagion, and this is rendered probable by the consideration, that the disease is not extended by an individual removed out of the noxious sphere. Exactly the same happens in relation to yellow, and even ordinary miasmatic fever. By going into an infected district in either case, the respective diseases are acquired, which, however, are not further propagated."

It would be needless for me to notice the numerous exanthematous disorders which prevail in every country, and undergo little or no variation as to symptoms or mode of treatment among a white or black population. Variola, varicella, and rubeola, like many other epidemic diseases, take a wide range in their periodical visits, and no part of the world is exempted from them. During the most inclement winters in the south, our blacks often suffer greatly from inflammatory complaints incidental to northern climates. Quinsy, pleurisy, and catarrhal fever, prevail more or less extensively, and when promptly attended to, and judiciously managed, are seldom fatal, and are easily subdued by the usual efficacious mode of treatment; and as these diseases, in common with many others, arise chiefly from obstructed perspiration, we should not fail to resort to sudorifics, and persist freely in the use of them. Every plantation ought to be liberally supplied with the Virginia and Seneca snake-roots, particularly the former, with which the woods abound. It is a most valuable plant as a tonic, combined with Peruvian bark, or an infusion given to excite perspiration, and by uniting antimonial wine with it, it is rendered more active in its operation. Incipient pulmonary diseases, attended by cough and an accumulation of mucus obstructing the bronchiæ, and accompanied by dyspnœa, are much relieved by frequently inhaling the tar vapour from Mudge's inhaler, or when that cannot be obtained, from the spout of a tea-pot, or other convenient vehicle; twenty grains of myrrh, and three or four table-spoonfuls of honey may be

mixed with the tar water. This simple and palliative practice I have recommended for many years with great success. In all inflammatory cases, requiring the use of the lancet, it is necessary to act with decision in the early stage of the disease, particularly when called to visit a plethoric subject. I fear the practice of bleeding has been too generally adopted among the negroes in the country, and exercised with very little discrimination. It would be folly to deny the utility of this valuable measure when judiciously used, but it ought not to be left to the discretion of every tyro in medicine to decide on the expediency of phlebotomy, or to the inexperience of overseers and plantation nurses, whose extreme ignorance and temerity are often productive of the most serious consequences. It cannot be supposed that persons devoid of medical knowledge, can exercise their opinions with any accuracy, either as to the symptoms or cure of diseases. I am far from wishing it to be understood that I am inimical to the practice of bleeding, in those cases which promise the most distant prospect of relief; frequently when it cannot with certainty be employed as the means of cure, it may be successfully resorted to as a palliative, but when carried to excess it sends the patient prematurely to the grave. In attempting to remove one disease, it often induces another of a more inveterate nature. In the majority of diseases to which negroes are subject, we should depend greatly on sudorifics and cathartics, as the chief means of removing cuticular and visceral obstructions. The situation of the black population of the towns and country is very dissimilar. Diseases generally assume a mild character among our plantation negroes, from a temperate mode of living, whereas, the irregular and dissolute life of those inhabiting the cities, render them more liable to the virulent action of disease.

The country negroes are generally placed under proper restraint, they are kept from idleness, and not allowed to indulge in the pernicious use of ardent spirits. There is no disease in the autumnal season which prevails more commonly among the blacks than dysentery, and it is frequently very fatal, unless arrested by seasonable attention. It is too

often confounded on plantations by the ignorant and inexperienced with diarrhoea and the piles; an abscess in the intestines may be sometimes mistaken for it. In some seasons dysentery prevails extensively, and like all epidemic diseases, is nourished by an unhealthy state of the atmosphere, a hot and dry summer succeeded by a humid state of the air combine to produce it, particularly in badly drained and swampy situations; under these circumstances it is quickly called into action by obstructed perspiration, and is marked by the symptoms of chilliness, followed by fever, tormina, tenesmus, mucous and sanious evacuations from the bowels in a fetid state. The most dangerous signs are frequent and involuntary dejections, singultus, delirium, and coldness of the extremities. The indications of cure should be directed to a removal of the fever of the intestines, and care should be taken to dislodge by active medicine all acrid and morbid matter from them. To get rid of the vitiated contents of the stomach, an emetic should be given without delay. If great irritability of the bowels exists, and evident inflammation; if the pulse be hard and full, then bleeding must be resorted to, and the intestinal canal should be freely evacuated by calomel and rhubarb combined, the dose to be of course regulated by the age of the patient.

This disease in children is often accompanied with worms, and passes under the denomination of dysentery verminosa. If there is much soreness and uneasiness of the epigastrium, a blister must be applied. Perspiration must be promoted, for which purpose Dover's powder, in small doses of five grains every hour may be given to an adult, to the extent of twenty grains, and tepid diluents to assist the operation; the oleum ricini is an excellent medicine in this disease, when it can be obtained perfectly pure and free from rancidity. Enemas of starch, with a few drops of laudanum, should be administered to relieve tenesmus and assist in keeping the alimentary canal open. To relieve the febrile irritability small doses of the sulphate of magnesia may be given. The spirit of nitrous ether in a wine-glassful of water may be given to the amount of twenty or thirty drops every two

hours through the day. The demulcent quality of the *sesamum orientale* is peculiarly well adapted to this complaint; three or four leaves infused in a pint of water renders it sufficiently mucilaginous; it has been long used among the negroes on the plantations in South Carolina and Georgia, and may be drank freely with much good effect. The pith of sassafras also makes a pleasant and beneficial drink, a teaspoonful to a pint of water. The patient should be allowed rice gruel, rice water, and arrow root. When the patient is in a state of convalescence he may be permitted to use a decoction of the shavings of hartshorne, which, with the addition of a little cinnamon, sugar, and wine, is rendered both grateful and nutritious. To restore more effectually the healthy secretions, an infusion of bark may be given or the columbo powder. Every precaution should be taken to guard against a relapse, and strict attention paid both to diet and dress.

Cholera morbus is by no means an uncommon disease among the negroes, and proceeds chiefly from an accumulation of acrid bile, corrupt food, corrosive poisonous substances—vehement anger—it yields readily to medical aid, if speedily sought and judiciously applied. The *primæ viæ* should be completely evacuated, after which to allay the pain and uneasiness of the bowels, an enema of warm water and thirty drops of laudanum added to it may be administered, and repeated if necessary. Should the vomiting continue, the saline mixture may be given. As soon as the patient is convalescent and the stomach is able to bear tonics, give the cold infusion of chamomile or quassia, the colombo powder mixt in port wine, or half a drachm every two hours during the day in a wine glass of brandy and water.

Worms certainly occasion more deaths on our plantations than any disease to be found in medical nomenclature, and from neglect and ignorance many negroes are lost, who if properly attended to when the symptoms first appear, might be saved. The *lumbrici*, the *trichures*, *tæniæ* and *ascarides*, are all more or less troublesome, but the management of common worm cases is now so well understood, that every ex-

perienced nurse is competent to the cure of them. If strict regard was more generally paid to the diet of negro children, there would be little cause to apprehend any very serious consequences from worms. The food should consist principally of rice, and that with every other article given to them should be thoroughly cooked. During the summer months they are not sufficiently restrained from eating a variety of fruit, which is generally unripe, and of bad quality. The great abundance of wild plums, blackberries and whortleberries, with which the woods abound, contribute greatly to render them fit subjects for worms. Worm cases are usually left to the management of nurses, particularly on plantations; it is not however surprising, (although many of them are possessed of great experience,) that they should frequently err in the treatment of diseases, and be deficient in discrimination, we find them too often treating children labouring under diarrhœa, epileptic attacks and colic, as totally distinct complaints, when in fact they may be intimately connected with a severe and obstinate case of worms, and altogether excited by them. The remedies which I have found successful, consist of calomel and rhubarb, castor oil, and turpentine; infusion of spigelia, warm fomentations of a decoction of wormwood and chamomile, applied to the abdomen; emetics of antimonial wine and ipecacuanha; enemas of strong salt and water. The West India planters make great use of the *dolichos pruriens*, or cowhage; the spiculæ of one pod mixt up in a table-spoonful of molasses is given for a dose. The cowhage acts mechanically, exciting the peristaltic motion of the alimentary canal. It is favourably mentioned by Lunan in his *Hortus Jamaicensis*, and is very efficacious in expelling worms, when aided by the *oleum ricini*. The patient should be allowed the most digestible animal food. Tonics must be resorted to, such as Peruvian bark, quassia, serpentaria, and occasionally a little wine or porter allowed. I have known some African negroes to suffer much from the *dracunculi* or Guinea worms, which rarely affect the white inhabitants, and are chiefly to be found among the negroes in Africa, and the West Indies Islands. The diseased state of the blood of those persons subject to the Guinea worm.

is believed to be occasioned by a variety of causes, such as corrupt animal food, drinking stagnant water, uncleanness, and the stings of venomous insects. The disease is usually indicated by a small tumour in the muscular part of the leg, which should be poulticed and brought to suppuration; as soon as the head of the worm is perceived, it should be secured by a thread and tied to a small roll of linen, and by that means gradually and cautiously extracted, after which the ulcer may be washed by a solution of the acetate of lead. The patient should be subjected to a course of medicine, and treated in the same manner as in ordinary worm cases.

The venereal disease, which prevails too generally among the negroes of the country, as well as the cities, and it is not in the least surprising when we consider how very promiscuously these people conduct their amours, that they should be subject to this loathsome disease in all its varieties; cases of confirmed lues venerea are by no means uncommon with the country negroes, but from their mode of living they are more exempt than the black population of the towns, and the disease is usually less virulent, and yields more readily to medical treatment. From a sense of shame and an unwillingness to disclose their situation while labouring under this complaint, our slaves instead of applying to their owners for medical aid, too often prefer confiding in quacks of their own colour, many of whom boast of being in possession of valuable nostrums for the cure of syphilis, and in the true spirit of empiricism persevere in a course of practice which too frequently terminates in the ruin of the constitutions of their patients. There are negroes on many of the plantations who possess a knowledge of the virtues of medicinal plants with which our woods abound, and which when applied judiciously, act with much efficacy in this particular disease, and may be considered as perfectly well adapted for the cure of gonorrhœa; the compound decoction of sarsaparilla, so generally prescribed in hospital practice, answers every purpose. The patient should be required to adhere to the most mild regimen, and whatever he is allowed to drink must be demulcent. This plan of treatment,

rigidly followed, although perfectly simple, seldom fails to ensure success. In treating a confirmed syphilis, there can be no remedy so certain in its effects, and presenting so good a prospect of a perfect cure as mercury. I prefer the mercurial ointment for negroes, friction being the safest and most speedy mode of affecting the system. The internal use of mercury will sometimes act too readily on the bowels, and produce those distressing symptoms we wish to avoid. When the system has been fully acted upon by the mercurial friction and the disease subdued, the patient should then take the bark in decoction combined with gentian or Sampson's snake-root. There is a disease of African origin called the yaws, which bears I think some affinity to lues venerea, and should be treated much in the same manner. In virulent cases the mercurial ointment may be rubbed into the arms and thighs in the quantity of a drachm every night until salivation is produced, to effect which more speedily, two grains of the sub-muriate of mercury may be given every night and morning, and should it act on the bowels too harshly, half a grain of opium must be added each time. As soon as the patient is considered in a convalescent state, he should be made to drink the decoction of sarsaparilla for a short time, and then commence with a decoction of Peruvian bark; a nutritious diet with a daily allowance of wine or porter should be given. The inguinal and axillary glands are commonly enlarged in this disease, and various parts of the body become ulcerated and discharge a fetid pus, which should be frequently and carefully cleansed, and the ulcers dressed with simple cerate.

The treatment of wounds and stings inflicted by venomous animals on the negroes, who from being generally employed in clearing and cultivating lands in the southern states, are necessarily more exposed to the risk of suffering from injuries of this nature, will next be mentioned, and it is really surprising, when we consider with what a variety of venomous animals our woods abound, that accidents do not more often occur to this race of people. Nature has armed the negro with a thicker cuticle than the white, and although the integuments of his body are not impervious, yet they are

certainly less susceptible of the venom of the innumerable insects which infest our swamps and highlands, some of which are supposed to inflict wounds on the skin and deposit their ova, thereby producing ulcers of the worst kind. These however, yield without much difficulty to the usual mode of treatment, by fomentations, emollient cataplasms, ointment, &c. but what can resist the bite of an enraged and subtle serpent, which no sooner strikes a vascular part than the deadly poison gives rise to all those terrible symptoms which presage the fate of the unhappy patient. If bitten by a rattlesnake, he is immediately seized with an acute pain in the part wounded, tremor, nausea, convulsive vomiting, cold sweats, a quick, low and interrupted pulse. If the combined efforts of nature and art do not speedily afford relief, death must terminate the agony of the unfortunate sufferer. It often happens that when the skin, as on the sole of the foot, becomes much indurated, a feeble wound inflicted there makes no great impression, and medical aid quickly resorted to will overcome every difficulty; this will also apply to a bony and cartilaginous part; or where the absorbents are in a torpid state, the system will not be so seriously affected as to preclude the hope of recovery by medicine. If the snake is full-grown and vigorous, and his teeth charged with the deadly venom, desperate indeed will be the situation of that person who is struck by it, particularly if the wound is made on a blood-vessel. Under these circumstances but a very few minutes intervene between the time of attack and the extinction of life. We have numerous well authenticated instances of both horses and dogs being struck by rattlesnakes, and so instantaneous was the baneful effect, that not more than a few minutes elapsed from the infliction of the wound to the death of the animal, and the carcasses were found in a quarter of an hour after to all appearance in a state of gangrene. In order to ascertain what would be the precise length of time an animal could exist after being wounded, I have placed a half-grown fowl in a cage with a rattlesnake which received a wound on the breast—and in less than a minute after the fowl was struck, it sickened and became convulsed, and died

in three minutes. I repeated the experiment, and the like fate attended the second fowl, in about much the same time. There are plants indigenous to the soil of America, which are recommended as specifics for the bite of a rattlesnake; that some of them possess medicinal virtues cannot be denied.

It is a most extraordinary circumstance attending the bite of a rattlesnake, that the bodies of all animals after their death speedily become putrid, and such is the virulent action of the poison, that there are numerous instances of dogs being reduced to a complete state of putrefaction in less than an hour after their dissolution. Many valuable medicinal plants are used with various success as remedies for the bite of a rattlesnake. It is a common practice on some of the plantations in South Carolina, when a negro is wounded by a snake, to give him a table-spoonful of the juice of the roots of plantain and horehound, mixed with an equal quantity of whiskey or rum, and to repeat the dose at short intervals until it produces a good effect—the wounded part is scarified and a leaf of tobacco is steeped in brandy or whiskey, (and if that cannot be had,) in rum, and applied to the wound; a leaf of the stramonium is also considered as affording relief when applied in the same way as the tobacco. A plant called the small aloe, and commonly known by the name of the rattlesnake's master, is also a favourite remedy. All the plants which I have ever heard of do not, I believe, possess half the virtue and efficacy of the spirit of ammonia: this has been proved to be the most certain remedy, and one on which we can most rely. Tincture of opium and ammonia should be given in the quantity of each a tea-spoonful, mixed in a wine-glass of whiskey or brandy, and frequently repeated, until there is cause to suppose the patient is out of danger. If there is great constipation of the bowels, give two ounces of castor oil, and mix with it a tea-spoonful of the oil of turpentine. Scarify the wound and let it be covered with a piece of linen rag, which must be constantly moistened with a mixture of linseed oil, spirit of ammonia, and laudanum. Many well authenticated cases have been recorded, in which the efficacy of the spirit of ammonia has been proved. It

would appear, then, that stimulants act powerfully in destroying the poison of venomous animals, but more particularly that of the rattlesnake. Immediately after a wound is made by a venomous snake on a limb, a tight ligature should be fastened a few inches above the part bitten, so as to prevent, if possible, the poison from being conveyed into the circulation, and the ligature must be secured until a trial has been made of the proper remedies. It will be unavailing to resort to this mode unless instantly after the bite.

The arrangements usually made on populous and well-managed plantations for the comfort of the sick, are highly commendable. It is customary on some estates to provide hospitals, with nurses and all necessary articles, but I am of opinion that it should always be left to the choice of the patient, to go into the hospital or be attended in his house. It is the interest and duty of the owner to consult the feelings of the slave, and to grant every reasonable request as a reward for fidelity. Whether in health or on the bed of sickness, we should act in strict conformity with the laws of justice and humanity, and the man who can wantonly violate these sacred obligations, should be held in abhorrence. It is, however, with feelings of pride and satisfaction, that I declare most candidly my belief, that the negro slaves are generally treated with kindness through the southern states, and in numerous instances with great indulgence.

I have now finished my cursory sketch of such diseases as are commonly to be met with among the negroes of the southern states, and hope, at a future period, to have it in my power to provide additional and more interesting remarks on the subject. Whatever opinions I have advanced on the physical peculiarities of the negro, are supported by the authority of the most eminent writers. The most important truths arise from a rational theory, in searching for which we should avoid all such disquisitions as involve us in perplexity, and never allow the false philosophy of visionary enthusiasts to mislead our judgment. In censuring the opinions of others, we sometimes expose ourselves to be assailed for errors which we may commit in attempting to establish the validity of a

favourite theory. A celebrated English physician has justly observed, that "the invention of an hypothesis is a work of no difficulty to a lively imagination, and the fiction by its tinsel glitter never fails to dazzle the ignorant and vulgar. But to watch with close attention the operations of nature, to treasure up a store of useful facts, to learn by accurate observations the diagnostics of diseases, and by unbiassed experience the true method of cure, requires unwearied labour, assiduity, and patience, at the same time that it admits of no pompous display of wit or knowledge."*

ART. VII. *Remarks on Inverted Toe-nail*. By JOHN D. GODMAN,
M. D.

THIS disease is very generally owing to violent compression caused by wearing very hard and tight boots or shoes, in consequence of which the soft parts at the sides of the great toe are pressed upwards against the edge of the nail; excoriation at length ensues, and is followed by a very painful irritative inflammation, the formation of spongy granulations, and a discharge of thin, offensive ichor. The growth of the nail seems to increase with the diseased condition of the parts, and frequently a long and acute angle of the nail is found to extend deeply into the substance of the toe, whence it cannot be removed without much difficulty.

The sensibility of the toe is so morbidly increased by this irritation, that the very idea of an operation for the removal of the nail which causes it, is dreadful, and few persons have the fortitude to attempt any thing besides temporary palliation. Certainly there is nothing more disgraceful to surgery, or more justly to be feared by the sufferer than the operation proposed for the radical cure, called "evulsion of the nail." With the great toe in a state of extreme irritability, to talk of making incisions at the root, and dragging the nail violently off by the aid of forceps, might lead us to believe

* Dr. Percival.

that the intention of the surgeon was to inflict the most exquisite torture, rather than to lessen and remove the sufferings incident to humanity.

Having some time since been called upon to prescribe in the case of a lady of extreme delicacy of constitution, who had suffered at intervals during several years from accessions of inflammation caused by inverted toe-nail, I was led to attempt the operation presently to be described. This lady had long been in very bad health, and from other causes was so extremely nervous as to be thrown into fainting or convulsion fits, by any slight pain or sudden shock. At the time the operation was performed the toe was very much inflamed at the extremity, and the patient had for some time been disabled from walking.

With a keen-edged, narrow-bladed and round-pointed knife, (similar to the iris knife of the oculist,) a line was drawn from the root to the extremity of the nail, about one fourth of its breadth from the inflamed part. The nail was then cut through by small shavings taken from each side of this line until the whole nail was fairly divided to the quick. This was done as gently as possible so as to produce no pain nor inconvenience to the patient. The point of the knife was then introduced beneath the nail at the extremity of this section, and moving it very slowly and gently, (the edge being as much as possible directed against the under surface of the nail,) a very small portion of the attachment to the nail was divided at each time; perhaps not more than the breadth of a fine bristle. By working in this manner patiently and slowly, in a short time, a considerable extent was detached, extending from the longitudinal section of the nail towards the inverted part or the lateral margin buried in the diseased integument. As soon as the nail is thus sufficiently separated to allow of its being slightly elevated with the forceps, the operation can be continued more advantageously, though on the same principle until the whole inferior surface of the nail is detached entirely into the diseased parts, and then a slight use of the knife in a similar manner on its external part at the root and sides will allow the whole diseased portion to be removed

without the least degree of violence, and without inducing the most sensitive patient once to shrink from the pain.

In the first case, about one-fourth part of the nail was thus removed; split through where it was sound, and dissected fairly off from the sound and diseased parts. I have several times repeated the operation since then with the same success, the patients expressing their astonishment during its performance, that it should cause so very trifling a degree of pain as scarcely to amount to a smarting, when the slightest touch or motion of the toe occasions exquisite torture.

During the last winter I operated upon both the great toes of a gentleman who had suffered for years from recurrence of inflammation produced by inverted nails. Nearly half the nail was removed from both toes, without his expressing the least inconvenience from the operation, though the toes were exceedingly inflamed and irritable at the time.

It appears to me that the principle upon which this operation was performed might be advantageously extended to cases of greater consequence, and that operations frequently withheld from dread of consequences, or followed by death in very irritable constitutions, might be performed without much immediate suffering, and with permanent advantage to the patient. By using very keen instruments, (and who has not occasionally seen very dull ones used on the *living* body?) and dividing very minute portions at a time, the violent shock to the nervous system may be avoided, and the great object be accomplished almost unconsciously to the patient. I will not undertake to specify cases in which this practice would be the most proper, but certainly I have seen tumours removed from the mammæ, and similar operations performed on very sensitive parts, in which the dreadful sufferings of the patient and the fatal consequences might have been averted by operating upon the principle of doing it *quick* enough, if it were done *well* enough. It is certainly a very pretty thing for a surgeon to perform a great operation in a few seconds, and would be a great service to suffering humanity if his success bore any definite proportion to the celerity of operating. But we have yet to learn that those are the

most successful who operate most swiftly, or that those are the best surgeons who display the greatest indifference to the sufferings of their patients.

Of this, however, I feel fully convinced, that the "evulsion of the toe-nail" ought never to be performed as directed in the books, since it is unnecessarily painful; by the operation above described, the whole nail, if necessary, or any part of it, may be removed without causing the patient any appreciable pain, and with a certainty of its proving an effectual and permanent remedy for the disease. It may be rendered still more free from inconvenience, if the toe or toes to be operated on be kept enveloped in a soft poultice for a day or two before the operation, and all irritation or motion avoided; after the operation, nothing is necessary but to prevent the exposed surface from being irritated.

REVIEWS.

ART. VIII. *Anatomie Comparée du Cerveau dans les quatre classes des animaux vertébrés appliquée à la physiologie et à la pathologie du système nerveux, par E. R. A. SERRES, &c. &c. ouvrage qui a remporté le grand prix à l'Institut Royal de France: tome premier.* A Paris, chez Gabon and Co. 1824. pp. 576.

COMPARATIVE Anatomy and Physiology have long been regarded as the sources whence the illustration of some of the obscurest functions and diseases of the human body may be hoped for; and this induces us to hail with gratulation, every effort made by the assistance of these excellent coadjutors, to disperse the dense obscurity which involves the physiology and pathology of the brain and nervous system. The difficulties attendant on the study of these subjects are well expressed by CUVIER in the sentence which has been selected as the epigraph of the work now before us:—"DEMOCRITUS and ANAXAGORAS dissected the brain already nearly three thousand years ago; HALLER, VICQ D'AZYR, and numerous living anatomists have done the same in our own days; yet, admirable fact! each has left discoveries to be made by his successors!" We should be delighted to believe that the labours of Professor SERRES will render future inquiries unnecessary, except for the confirmation of his views, or that *he* has not also left discoveries to be made by such as may hereafter retrace his steps; we are, however, convinced, that he has produced an excellent and useful work, which will entitle him to the thanks of every philosophic student, and secure him a high rank among the anatomists of the present age.

On the present occasion we shall present our readers with a concise analysis of the whole work, in doing which we shall avail ourselves of the luminous report made to the Institute by the illustrious CUVIER. In another number of this jour-

nal we shall bring forward the views of Professor Serres relative to the laws, or principles of action, observed by nature, in the formation of organized bodies, and compare the conclusions he has drawn with those of TIEDEMANN, MECKEL, and various other observers.

The difficulties which have hitherto impeded the application of comparative anatomy to the illustration of the functions and diseases of the brain, has been in great measure owing to the manner in which the study has been begun. Anatomists have sought for *resemblances* between the brain of other animals and that of man, and in the first class, or mammiferous animals, these resemblances were sufficiently striking, seeing that the organ, except in proportions, is almost an exact repetition of itself in all the families composing this class. The organ presenting similar appearances, was of course considered in the same light, and its parts denominated as in the human body; with ideas thus formed the cerebral anatomy of birds was next attempted, and but a few steps were made before it became necessary to stop short in order to determine the parts of which their encephalon was composed. The cerebral lobes and cerebellum were easily recognized; but the quadrigeminal tubercles were mistaken on account of their change of form and position: the optic thalami were in like manner mistaken, and the encephalon of birds was thought to differ in composition from that belonging to the first class of animals.

The chain of resemblances thenceforth appeared broken, and when the third class or fishes were examined, it appeared impossible to unite it for the following reason: Anatomists, though for what reason is not easy to say, had been accustomed to dissect the human brain from its superior part, and that of mammiferous animals from before backwards; a method which had but few inconveniences in the first, and not very important ones in the second class, because it was not easy to mistake the cerebral lobes and the cerebellum. But the brain of fishes is very differently constructed, being composed of a series of bulbs arranged in lines from the front to the back part, sometimes two, sometimes four or six, in num-

ber. Now, which of these pairs should be considered as cerebral lobes? the anterior, middle, or posterior? As investigators had no basis upon which either of these determinations could be established, they were adopted and rejected in turn. It was necessary then, before attempting to establish the relations of the different elements of the encephalon, to remove all this confusion, determine their analogy, and establish this determination upon the same bases throughout all classes.

The first part of Professor Serres' work is devoted to this object, and in it he separately describes the brain in each class especially, by considering this organ from the smallest perceptible embryo to the perfect condition and adult age of animals. Having determined the analogy of each portion of the encephalon, the latter part of his work is devoted to the study of their comparative relations in the four classes of vertebrated animals; these relations are expressed in the following general proportions.

The spinal marrow is formed before the brain in all the classes of animals. It consists at first in young embryos of two cords not united posteriorly, which form a groove or gutter; these two cords soon touch and coalesce at their posterior part. The internal part of the spinal marrow is then hollow; there is a long canal which may be termed the ventricle or canal of the spinal marrow; this canal is sometimes filled with a fluid which constitutes the *dropsy* of the spinal marrow, which is a disease of considerable frequency in the embryos of mammiferous animals.

In human embryos this canal is obliterated at the fifth month; in the horse and cow at the sixth month; in the embryo of the rabbit on the twenty-fourth day; on the thirtieth in the cat and dog; it is found in the tadpole of the frog until the anterior and posterior limbs begin to appear. This obliteration is produced in all these embryos by successive depositions of grey matter in layers, secreted by the pia mater within the canal.

In the young embryos of all classes, the spinal marrow is of the same size throughout its whole length; it is without anterior or posterior enlargement, like that of reptiles

having no limbs, (vipers, snakes, *anguis fragilis*,) and most fishes. The absence of anterior and posterior extremities in all embryos is coincident with the absence of these enlargements of the spinal marrow. The embryos of all mammiferous animals, including those of the human race and of birds, in this respect resemble tadpoles and batracian animals generally.

The appearance of the anterior and posterior enlargements of the spinal marrow coincides with the appearance of the limbs in all embryos: this effect is especially remarkable in the tadpole of batracian animals at the time of their metamorphosis; the embryos of man and other mammiferous animals, birds and reptiles, undergo a metamorphosis entirely analogous to that of the tadpole.

Animals having but one pair of limbs, have but a single spinal enlargement; the cetaceous or whale kinds are peculiarly in this condition. The spinal swelling varies in position according to the situation the limbs occupy on the trunk. The genus *bipes* has it on the posterior part of the spinal marrow; the genus *bimanum*, on the contrary, has it on the anterior part. In the monstrosities frequently found in the embryos of mammiferous animals and birds, biped and bimanous individuals are often discovered, which like the cetacea and reptiles, have but a single enlargement of the spinal marrow, situated always opposite to the existing pair of limbs. The spinal marrow of fishes is slightly enlarged opposite to the points which correspond to their fins. Thus the *jugulares* have the enlargement behind the head in the cervical region of the spinal marrow; the *pectorales* towards the middle or dorsal, and the *abdominales* at the abdominal regions of the spinal marrow.

The *trigles*, remarkable for the rays detached from their pectoral fins, are also remarkable for a series of enlargements of the spinal marrow, proportioned in number and volume to the size and number of the rays to which they correspond.

The electric fishes have a considerable enlargement, corresponding to the nerve which is distributed to the electric apparatus.

The class of birds offers very remarkable differences in the proportion of these two swellings. Those which live on the ground, like the domestic birds, and those which climb the trunks of trees, have the posterior enlargement much greater than the anterior. The ostrich is peculiarly remarkable in this respect. Birds which soar in air, and fly for whole days, offer an inverse disposition; in them the anterior predominates over the posterior.

GALL has advanced the opinion that the spinal marrow was enlarged at the origin of each nerve; SERRES thinks that this opinion is not confirmed by the examination of the spinal marrow of vertebrated animals at any period, either in intra or extra-uterine. Gall considers these supposed enlargements analogous to the double series of ganglions, which replace the spinal marrow in articulated animals. This analogy is found as other authors have already shown, not in the spinal marrow, but in the inter-vertebral ganglia.

These ganglia, which have been but little attended to by anatomists, are in all classes of animals proportioned to the size of the nerves which traverse them. They are much larger opposite to the nerves going to the limbs than at any other parts.

The spinal marrow is extended to the extremity of the os coccygis in the human embryo, until the third month. At this time it is drawn up to the level of the body of the second lumbar vertebræ, where it is fixed at birth. The human embryo has a caudal prolongation, which has been noted by all the anatomists, and this persists until the third month of the uterine life. At this period this prolongation disappears, and its disappearance coincides with the ascension of the spinal marrow in the vertebral canal and the absorption of a part of the coccygeal vertebræ. If the ascent of the spinal marrow should be prevented, the human fœtus would be born with a tail, of which numerous cases have been related: the os coccygis would then be composed of seven vertebræ.

There is then a relation between the ascent of the spinal marrow in its canal, and the caudal prolongation of the human fœtus and the fœtuses of other mammiferous animals. The

higher the spinal marrow ascends in the vertebral canal, the greater the diminution of the caudal prolongation, as in the hog, wild boar, and rabbit: on the contrary, the more the spinal marrow is prolonged and descends in its case, the more the dimensions of the tail are augmented, as in the ox, horse, squirrel, &c.

The embryo of the tailless bat in this particular resembles that of man; at first it has a tail which it rapidly loses, because in these mammiferæ the ascent of the spinal marrow is very rapid, and it is raised high up. This change is especially remarkable in batracian animals; as long as the spinal marrow is prolonged into the coccygeal canal, the tadpole retains its tail. When the tadpole is about to become a frog, the spinal marrow ascends in its canal, the tail disappears, and the limbs are gradually formed. If this ascent does not occur, the tail would remain as it would under similar circumstances in the human fœtus. The human fœtus, therefore, and those of bats and other mammiferous animals, undergo a metamorphosis similar to that of the tadpole.

In reptiles destitute of limbs, (vipers, snakes, &c.) the spinal marrow resembles that of the tadpole, previous to its metamorphosis. In all the fishes the spinal marrow presents the same character; it often has at its termination a very small enlargement. Among mammiferous animals, the cetacea in this particular resemble the fishes. Monstrous human embryos, destitute of inferior extremities, approach the cetacea and fish in this respect.

The crossing of the fibres of the pyramidal bodies is visible in the human embryo after the eighth week. In mammiferous animals it becomes less and less apparent in descending from the quadrumanous to the gnawing animals. In birds the crossing of one or two bundles of fibres at most are only visible. In reptiles there is no interlacing; the same is the fact in relation to fishes.

The volume of the spinal marrow and that of the brain, is generally in inverse proportion to each other in vertebrated animals. In this respect the human embryo resembles the

inferior classes; the younger it is, the greater the size of the spinal marrow, and the smaller the brain.

Under certain circumstances, the spinal marrow and brain preserve a direct relation of volume; thus, in proportion to the slenderness and narrowness of the spinal marrow is that of the brain, as we especially see in serpents. The spinal marrow diminishing in length and increasing in thickness, the brain increases in equal proportion, as in lizards and tortoises.

In birds, the longer the neck is, the narrower is the spinal marrow, and the more slender is the brain. This direct proportion of volume between the spinal marrow and the brain, does not equally occur in the whole brain, but solely in the quadrigeminal tubercles.

The spinal marrow and quadrigeminal tubercles are rigorously developed in a direct ratio to each other; so that the volume or *force* of the spinal marrow being given in one class, or in the families of the same class, we may rigorously determine the volume and force of the quadrigeminal tubercles. The same is to be observed of the human embryo; the strength or size of the spinal marrow is proportioned to its youth, and the quadrigeminal tubercles are developed in the same proportion.

These tubercles are the first formed parts of the encephalon; they are always formed before the cerebellum, in the embryos of birds, reptiles, and all the mammifera. In birds these tubercles are only two in number, and occupy the base of the brain, which has led to their being overlooked or mistaken.

They do not attain this condition until after a very remarkable metamorphosis; in the first days of incubation, they are as in the other classes, situated upon the superior faces of the encephalon, forming at first two lobules, one on each side; on the tenth day this lobule is divided by a transverse depression, and at this time there are truly *four* tubercles situated between the cerebellum and cerebral lobes. On the twelfth day a very singular movement begins, by which

they are carried from the superior towards the inferior face of the encephalon. During this movement the cerebellum and cerebral lobes hitherto separated by these tubercles, successively approach, and finish by lying against each other, as in adult birds.

In adult reptiles these tubercles are only *two* in number; but in the tadpole of the frog on the fifteenth day, they are divided like those of the birds on the tenth. The tubercles do not change place, they remain always situated upon the superior face of the encephalon between the cerebellum and cerebral lobes, and their form is always oval.

In fishes, the considerable bulk of the quadrigeminal tubercles has hitherto caused them to be considered as the cerebral hemispheres. This error has been kept up because they are hollowed by a large ventricle, presenting within a considerable enlargement analogous in form and structure to the striated bodies of mammiferous animals. These tubercles are always binary in fishes, and their form approaches that of a spheroid slightly flattened below.

In man and other mammifera, the quadrigeminal tubercles are only two in number during about two-thirds of the uterine life. They are then oval and internally hollow, like those of birds, reptiles, and fishes. In the last third of gestation a transverse groove divides each tubercle, and it is then only that they are four in number. The diversity presented by these tubercles in the different families of mammiferous animals depends on the position of this transverse depression.

In man it occupies ordinarily the middle part, the anterior tubercles are nearly equal to the posterior. In carnivorous animals, the depression is nearer to the front, which gives predominance to the posterior tubercles. In the ruminant and gnawing animals, the depression is situated toward the back part, and then the anterior tubercles predominate over the posterior. In certain brains of human embryos, the tubercles remain *geminal*, which makes such instances resemble the fishes and reptiles.

It should be remarked, that primitively the quadrigeminal tubercles in man and other mammifera are hollow like those

of the birds, reptiles, and fishes. The obliteration of their cavity is produced like the obliteration of the spinal marrow, by the deposition of layers of grey matter secreted by the pia mater within the cavity.

The quadrigeminal tubercles are developed in all the classes and families of the same class, in the direct ratio of the volume of the optic nerves and of the eyes. Fishes have the quadrigeminal tubercles most voluminous and the optic nerves and eyes most strongly marked; the reptiles are next to the fish in volume of eyes, optic nerves, and quadrigeminal tubercles. Birds are equally remarkable for the developement of their eyes; they are also by the volume of their optic nerves and quadrigeminal tubercles.

In mammifera, the eyes, optic nerves, and quadrigeminal tubercles go on decreasing from the gnawers to the ruminants, from the ruminants to the carnivorous, the quadrumanous and man who occupies in this respect the lowest degree of the animal scale.

As the quadrigeminal tubercles serve as a base for the determination of other parts of the encephalon, all the proofs should be accumulated relative thereto.

Fishes having the most voluminous quadrigeminal tubercles, have also the most marked interparietal bones. The reptiles stand next to the fishes, and the birds to these; finally among the mammifera, the gnawers have the largest interparietals; the ruminants the next, in the carnivorous, quadrumanous and man, they are not found, except accidentally. It may appear singular that the cerebellum should be formed after the tubercles, yet this fact has not a single exception throughout any class.

To have exact notions of the cerebellum of the superior classes, we must first observe this part in fishes. In them the organ is formed of two very distinct parts. 1st. A median lobe having its roots in the ventricle of the quadrigeminal tubercles. 2d. Lateral layers, coming from the restiform bodies. These two parts are insulated, and disjunct throughout the whole class of fishes, which has led to their being mistaken.

The great difference presented by the cerebellum of the superior classes depends upon the reunion of these two elements, one of which preserves the name of *superior vermicular process* of the cerebellum, and comes as in fishes, from the quadrigeminal tubercles, (*processus cerebelli ad testes, valvula vicussenii, &c.*) while the other, rising from the corpus restiforme, constitutes the hemispheres of the same organ. These elements, although reunited, preserve an entire independence of each other.

The superior vermicular process of the cerebellum, (median lobe,) and the hemispheres of the same organ are developed in all the classes in an inverse ratio to each other.

In the families composing the mammiferous animals, this double relation is rigorously the same: thus the gnawers, ruminants, carnivorous quadrumanous, and man, have this process and the hemispheres developed in an inverse ratio.

In all classes, excepting the reptiles, the median lobe of the cerebellum, (superior vermicular process,) is developed in direct proportion to the volume of the quadrigeminal tubercles. In the mammifera the same double relation is rigorously maintained: thus the gnawers, which have the most voluminous tubercles, have the most strongly marked median lobe of the cerebellum, and the smallest hemispheres to the same organ.

Man, on the contrary, who occupies the summit of the scale in relation to the volume of the hemispheres of the brain, has the smallest median lobe and the smallest quadrigeminal tubercles.

The cerebellum in all the classes is developed by two lateral layers not united at the median line. The spinal marrow is developed in all the classes in the direct ratio of the volume of the median lobe of the cerebellum. The spinal marrow is developed in all classes in an inverse ratio to the hemispheres of the same organ. These general facts are especially important in appreciating the relations of the annular protuberance.

The annular protuberance, (*pons varolii*,) is developed in the direct ratio of the hemispheres of the cerebellum in an

inverse ratio to the median lobe of the same organ, (superior vermicular process,) and also inversely to the quadrigeminal tubercles and spinal marrow.

The optic couches, (*thalami nervorum opticorum*,) do not exist in fishes; what has been mistaken for them is a swelling proper to the quadrigeminal tubercles. In reptiles, birds, mammifera and man, the volume of the optic couch is in direct proportion to the volume of the cerebral lobes. In these three classes, the optic couch is developed in an inverse ratio to the quadrigeminal tubercles.

In the human embryo the relation is the same; the tubercles decrease in proportion to the augmentation of the optic couches. In the embryos of other mammifera, in the fœtus of birds, and the batracian tadpoles, this inverse movement is also observed. Thus, the optic couches are developed in the three classes in which they exist, in direct ratio to the lobes, and inversely to the quadrigeminal tubercles.

The pineal gland exists in all the four classes of vertebrated animals.

It has two orders of peduncles, one coming from the optic couches, the other from the quadrigeminal tubercles.

The striated bodies, (*corpora striata*,) do not exist in fishes, reptiles, and birds. In mammiferous animals their development is proportioned to that of the cerebral hemispheres. These last are developed in the direct ratio of the volume of the optic couches and striated bodies.

In fishes they form a simple rounded bulb, situated in front of the quadrigeminal tubercles, in which the cerebral peduncles spread themselves out. In fishes, reptiles, and birds, the cerebral lobes constitute a solid mass, without an internal ventricle. The ventricular cavity of the cerebral lobes exclusively distinguishes man and other mammiferous animals.

A very curious inverse relation is observed in this respect between the three inferior classes and the mammifera relative to the quadrigeminal tubercles and cerebral lobes. In the three inferior classes the quadrigeminal tubercles are solid, form a compact mass, and the cerebral lobes are hol-

lowed, having a large ventricle. In these classes the cerebral lobes are without convolutions, which accords with their compact interior. In the mammifera, on the contrary, with the cavity in the lobes the cerebral convolutions appear.

The *cornu ammonis* does not exist in fishes, reptiles, or birds. It is found in all mammifera, and is more developed in the gnawers than ruminants, in the latter than in the carnivorous, quadrumanous, and man, where, all other circumstances being equal, it is less pronounced.

SERRES has not found the *Hippocampus minor* in any family of mammiferous animals; it is sometimes absent in man. The *fornix* is wanting in fishes and reptiles. In most of the birds it is also deficient; but a few, as paroquets and eagles, exhibit some rudiments of it.

The *fornix* in mammifera follows the developement of the *cornu ammonis*, being stronger in the gnawers than ruminants, and in these than in the carnivorous, quadrumanous, and man. There is no vestige of *corpus callosum* in the three inferior classes. This part and the pons varolii are characteristic of the brain in mammifera. The developement of the *corpus callosum* is in direct proportion to the volume of the *corpora striata* and cerebral lobes; it augments progressively from the gnawers to the quadrumanous and man. The *corpus callosum* is also developed in the direct ratio of the *pons varolii*.

The cerebral hemispheres taken together, are developed in direct proportion to the hemispheres of the cerebellum, and inversely to its median lobe or superior vermicular process. The cerebral hemispheres are developed inversely to the volume of the spinal marrow and quadrigeminal tubercles.

The nerves do not rise from the brain to go to the organs, as has been heretofore believed; on the contrary they go from the organs to the brain and spinal marrow, to communicate with the nervous centres.

Dr. GALL has stated that the grey matter is formed before the white; this opinion does not accord with facts in relation to the spinal marrow.

CUVIER first proved, that in the genus *asterias* the nervous

system is composed of white, without any grey matter. During the incubation of an egg, the first rudiments of the spinal marrow are in the same way composed of white matter; the grey matter subsequently appears. In human embryos, and those of other mammifera, the white matter is observed constantly to precede the grey in its formation in the spinal marrow. But in the encephalon, properly so called, the order of appearance of these two substances is inverse.

Thus the *optic thalami* and *corpora striata* are, in young embryos, nothing but enlargements composed of grey matter, the white matter being subsequently formed. In the human fœtus before birth, the *corpora striata* do not deserve the name, because the white matter from which it is obtained are not yet formed. The white striæ found upon the fourth ventricle in man, do not appear until twelve or fifteen months after birth. Hence it results that in the spinal marrow the white matter is formed before the grey, while, on the contrary, in the brain it is the grey matter which precedes the white.

The conclusions drawn by Professor Serres from his long and laborious research, are sketched in the foregoing pages, omitting other peculiar theories and doctrines he has deduced in the course of his inquiries. Future investigators may set out with far more advantage than could possibly have been done, before the mode of continuing the comparison of different parts of the brain was determined, and we should be happy to find some of our own countrymen devoting themselves to a research so worthy of their most zealous attention. But this is scarcely to be expected, when we consider the peculiar condition of most of our professional brethren, who, though willing to expend their energies and lives in the cause of scientific inquiry, cannot subsist upon FAME, the only reward they are likely to obtain for their labours. The great work of Serres was elicited by a prize of three thousand francs, and the French government expend annually large sums in thus inducing men of talent and enterprise to exert themselves exclusively for the promotion of truth and the diffusion of knowledge. In this country there appears to

be a disposition to try how much can be obtained for nothing, and those who devote themselves to any protracted research, do it, as a general rule, at the peril of starvation. This is especially the case in Philadelphia, where we believe that few or none of the medical officers attached to public institutions, receive a cent of compensation for their arduous duties, and have literally to work for *nothing*, and maintain themselves by other efforts. This is wrong; it is a shame; it is an injury to a valuable profession, and an injustice to the cause of truth, which could not fail to be more rapidly advanced, were those who are engaged in our profession paid *for their labour*, so that they might devote *their leisure* to scientific research. The absurdity of the present mode of acting is at once evident, when it is remembered that the money to be expended in this way belongs *to the people*, and is furnished by them. Why then should it be withheld from those who *earn* it in their service, and whose efforts would all tend to increase the knowledge and minister to the security and well being of the community. The delusive policy technically known by the name of *economy*, causes millions to be wasted throughout this country every year, a tenth part of which, properly applied, would educe the most excellent discoveries, and develop the most ennobling talents; increase the respectability and comforts of those devoted to scientific inquiry, and tend to elevate the character and augment the happiness of the world at large. I.

ART. IX. *The Anatomy of the Brain, with a general view of the Nervous System.* By G. SPURZHEIM, M. D. &c. &c. Translated from the unpublished French MSS. by R. WILLIS, Member of the Royal College of Surgeons in London, with 11 plates. London; Highley, 1826, pp. 234.

DR. SPURZHEIM, (who is so advantageously known by his assiduous study of the structure and functions of the brain, and by the works he has published in conjunction with the deservedly celebrated Dr. GALL,) has rendered a very acceptable service to medical students in general, by the publication of this volume, which is not like most other works on the subject, addressed exclusively to professed anatomists. It is moreover, especially valuable, because of its concise and perspicuous statements, and as it contains correctives for many of the erroneous observations and conclusions, published by SERRES, in his prize work, after which this volume ought to be carefully read; the plates which accompany the descriptions are also very good, and will essentially aid the reader in forming a correct idea of the relations of parts and the figure of the brain in the different classes of animals.

Spurzheim appears to have been incited to publish this work, by the appearance of Serres's prize essay, among other reasons, and we subjoin a paragraph in which we think he complains with justice of the manner in which the results of his labours as well as Dr. Gall's have been made use of.

"The influence our labours have had on the study of the nervous system is incontestible. To be convinced of this, it is enough to examine the state of knowledge in regard to the anatomy, physiology, and pathology of the brain and spinal marrow, when Dr. Gall and I developed our ideas on these matters, whether it was by teaching orally, by dissecting publicly, or by means of our writings. I confess there is great satisfaction in the consciousness of having contributed to the important reform that has been effected in regard to the nervous system. I am only sorry to observe, that many of our ideas are appropriated by authors of recent publications without any mention of the source whence they were derived, or

of the individuals who first struck them out, or reduced them to certainty by direct proofs. We are commonly enough mentioned, it is true, when such of our assertions as appear weak are the subjects of criticism; but our names are kept in the back ground, when points of importance become the matter of discussion. The public for instance, by referring to the proper place, may judge whether Mr. J. CLOQUET, in his "Anatomy of Man," has been sufficiently explicit in stating that he has copied every one of the plates of the human brain, contained in our large work. Mr. SERRES, whose memoir was deemed worthy of its prize, by the Academy of Sciences of Paris, in the first volume of his work, uses our names no lesser than fifteen times in connexion with a *single idea*, which he fancies he can refute, and generally along with every fact that looks unfavourable to our opinion, he names us, but he always forgets to cite us in relation to very many fundamental conceptions, which we had announced at the same time. They who have written to the following effect, "M. Serres has proved clearly the erroneousness of Gall's observations, and replaced them by others," may undeceive themselves by attending to the remark I have just made."

The author has not only given a view of his own and Dr. Gall's discoveries and conclusions, but added thereto the results obtained by BELL, MAGENDIE, BELLINGERI and other recent experimenters on the nervous system. In consequence, this little volume is in every respect desirable to such as may wish to make themselves acquainted with the study of the brain and nervous system. Mr. WILLIS appears to have made the translation with fidelity and spirit.

This work is divided into nine sections; the first contains some general reflections on the nervous system; the second treat of the divisions of the nervous apparatuses; in the third the nerves of voluntary motion and the external senses are examined; the fourth discusses the best mode of examining the brain: the cerebellum is described in the fifth, in the sixth the brain is described; the commissures in the seventh; in the eighth the nervous communications, and in the ninth some anatomical points connected with physiology.

ART. X. *Observations on the Medical Character; addressed to the Graduates at the Commencement held on the 4th of April, 1826.* By DAVID HOSACK, M. D. &c. &c. Published at the request of the Graduates. New York; Seymour, 1826.

EVERY enlightened member of the profession must rejoice to observe the various efforts which have been made within a short time past, to excite the attention of physicians to the highly important station they occupy in society, and to the necessity of conforming their characters to the dignity, responsibility, and usefulness of their office.

Nothing is wanting to raise the practitioners of medicine in this country, to the rank which the primitive nature of their duties entitles them to, but a degree of mental elevation sufficient to enable them to perceive the despicable tendency of an inordinately indulged self-love, whose immediate consequence is the production of discord, and its thousand consecutive evils.

It is with peculiar pleasure that we have read the address delivered by Professor HOSACK, who has so long and ably contributed to sustain the character of American medical science, and occupied with so much advantage to students of medicine, one of the most useful and attractive professorships in the Medical College of New York. In this address Professor HOSACK points out the duties which are to be performed by the young physician in order to qualify himself for his arduous office, and indicates the propriety of his taking accurate notes of all the cases which may come under notice. He especially insists on the necessity of devoting the undivided attention to the study of the profession in order to acquire that strength and promptness of judgment, which can alone qualify the physician for assuming the high responsibilities which attach to the profession. The following we believe will be assented to by all who are acquainted with the injury which the existing condition of things produces both to the profession and country.

"A law once existed, and I believe is still in force, but dic-

tated by a different principle from that to which I now refer, prohibiting the physician from performing the duties of a juryman. In like manner, while he professes himself a practitioner of medicine, it should equally disqualify him as a member of a legislative body, or as the occupant of any other public office calculated to distract his mind from his professional pursuits. If such salutary law existed, our houses of legislation would have fewer quack politicians to embarrass their proceedings, and our profession would be freed from a portion of the empiricism with which it is at present dishonoured."

In another place he observes, "industry in any laudable pursuit, is a never-failing source of satisfaction; but when the mind is directed to objects of high importance, and its exertions are attended with success, there is no state so happy as that of the industrious man in the constant exercise of his skill and abilities: and when these are directed to the relief of human suffering, I know of no luxury which the heart can enjoy, superior to that which the physician or surgeon experiences from the successful application of his art."

The remainder of the address consists of full and valuable advice for the regulation of study, and professional intercourse, as well as for the formation of good habits, and for avoiding the evils resulting from pride, envy and ill-nature, all of which sad experience teaches, require nothing but indulgence to render the individual miserable and to degrade the profession. It would give us pleasure to insert the whole of Dr. Hosack's address, did our limits permit, but we can refer the reader to the work itself with a confidence of his receiving both pleasure and instruction from the perusal.

ART. XI. 1. *Histoire des Phlegmasies ou Inflammations Chroniques.* Par F. J. V. BROUSSAIS, M. D.

2. *Researches on the Pathology of the Intestinal Canal.* By JNO. ABERCROMBIE, M. D.

3. *Practical Treatise on Various Diseases of the Abdominal Viscera.* By C. R. PEMBERTON.

NO disease, perhaps, has attracted generally less attention in the United States, than peritonitis. Confined chiefly in their reading to English writings, among which, till very recently, we shall in vain seek for any accurate information on the subject, many of our physicians, we apprehend, are very slenderly acquainted with it. Not one of the systematic works usually consulted by them, contains any notice of it, and the real sources of intelligence are shut up from them in the obscurities of a foreign tongue, or from which they are excluded by the difficulty of access to the late English publications which treat of this subject.

As such is presumed to be the fact, we may probably render an acceptable service to that portion of our readers to whom we have alluded, by preparing for them a digest of the views of the disease, as now entertained, from the amplest clinical observations and inquiries, as well as anatomical examinations. We have to regret, however, that at present, our space will not allow us to indulge in as ample a consideration of the subject as its importance demands. Excluding, therefore, nearly every thing of a speculative nature, it will be our principal aim to make a practical exhibition, to serve as a guide to the treatment of this very common and fatal disease, which is far more prevalent than is generally suspected, as has been clearly demonstrated by the cultivators of morbid anatomy both of Europe and this city.

No membrane of the body has greater susceptibility to this morbid process than the peritoneum. Covering, as it does, in various degrees, the whole of the abdominal contents, it sooner or later shares in the inflammation of these organs, or when the disease commences in it, which more commonly

happens, they receive it by extension from the peritoneum. An isolated or independent hepatitis, splenitis, nephritis, hysteritis, &c. is, in our opinion, a very rare and anomalous occurrence, which we have never seen, and the existence of which, we think is not confirmed by the tenor of the dissections of others of much higher authority.

But this local affection of the membrane is not the case under review. The peritoneum, like the pleura, and other serous tissues, is subject to a general phlogosis, and it is to that condition we propose to restrict our remarks.

As in the inflamed conditions, more especially of the alimentary canal, peritonitis generally commences with chills and shiverings, attended by pains in the limbs and back, followed ultimately by fever. The continuance of the cold stage is exceedingly indefinite, sometimes terminating speedily, while in other instances it endures for a day or two, with a cold, collapsed, pallid, clammy surface. Whenever reaction takes place, we have the ordinary evidence of fever, as heat, headache, oppression about the epigastrium, and more or less acuteness of pain in the abdominal region, sometimes confined to one spot, though more generally it is diffused. Gastric irritability, with nausea and vomiting may ensue, and the bowels are uniformly costive, so far as we have observed, though we are told differently by some writers. The stomach, however, is not uniformly affected, and perhaps very rarely, except the inflammation extends to the portion of the membrane covering it. There is also much thirst, a sense of internal heat, and some dryness of the tongue and fauces, the former of which is apt to be smooth and polished, or slightly covered with white fur. The pulse is small, quick, and corded, and is well calculated to deceive a practitioner, as to the nature of the case. But, from the very beginning, certain symptoms usually exist, which, if not overlooked, can hardly fail to awaken suspicion. Thus, there is the sense of heat and pain, to which we have already alluded. By pressure, the pain is much increased, and a tenderness is complained of, over the whole abdomen.

These are the ordinary phenomena which usher in perito-

nitis. But in the course of twenty four hours, or even a shorter time, the tenderness of the abdomen so much augments, that the weight of the bed-clothes can scarcely be endured. The patient will be found to lie on his back only, for reasons presently to be assigned. The pulse now remaining in the same small and contracted state, is raised from one hundred to one hundred and twenty or one hundred and thirty in the minute. With this, the tongue becomes more or less loaded, and the countenance assumes the expression of distress. This expression sometimes takes place much earlier, even in the commencement of the attack, resembling somewhat, that induced by the writhings under severe intestinal uneasiness. It is marked particularly, by certain contractions of the face, which give an aspect of sharpness to the features.

All the preceding symptoms are gradually exasperated, and especially the swelling and tension of the abdomen, arising either from flatulence of the bowels, or emphysema of the subjacent cellular tissue or both. It is by no means rare at this time for the pain, which had been excessive, suddenly to cease, as if by the effect of some remedy. But let not this be construed as an auspicious omen.

Cotemporaneously, or nearly so, with this sudden and unexpected event, there is a sinking of the pulse, while it vastly increases in rapidity. There are now also vomitings of dark matter, or rather it is expelled by a sort of singultus or spasmodic effort of the stomach. Cold clammy sweats break out, the extremities lose their warmth, the countenance collapses and becomes haggard, and at length, a difficult and laborious respiration, especially the inspirations, manifest the closing struggles of life.

These are the symptoms, and such is the ordinary progress of peritonitis. But we have known it to assume a shape far more disguised. Cases have come under our own observation, (and one in particular of a boy,) which ran through its course to a fatal issue in gangrene of the membrane, which was without the pain, or any of the leading symptoms incident to the disease, in this, as well as many other respects,

resembling gastritis. This remark, which we once thought peculiar to ourselves, we find to be common to several of the late writers. There is also some variety in the pulse, the appearance of the tongue, and the state of the skin. We have seen the first soft and slow, the second clean and moist, and the third either intensely hot and parched, or relaxed and perspiratory, with little deviation from the natural temperature. These modifications may in part be owing to idiosyncrasies of constitution, or to the implication of other tissues or organs in the disease, giving to it an anomalous or more complex character.

The causes of peritonitis, are ordinarily such as excite the phlegmasiæ, or active inflammations generally. Cold, variously applied, as by sleeping in a damp room or bed, or by wearing damp clothes, particularly linen, or standing on damp ground, is certainly the most prolific source. We have seen it too, excited by drinking intensely cold water, and once by eating iced creams. But it is also occasioned by the extravasation or infiltrations of certain fluids, as blood, urine, bile, or serous effusions, into the peritoneal cavity. We are moreover taught, that it may be induced, by acts of violence, as blows, or falls, or leaping, or straining as in vomiting, or by any effort whatever, that painfully exercises the abdominal muscles, and through them irritates the peritoneal lining. It is further brought on by the sudden suppression of customary discharges, as the menses or hæmorrhoids;—is sometimes coincident, at least, with stoppage of the lochia, either as cause or effect—often follows parturition, perhaps more frequently the easy, than the difficult, producing puerperal fever, and lastly, among the local causes may be mentioned, the recession of arthritic, rheumatic, erysipelatous and the exanthematous inflammations generally.

But the disease in some instances spreads widely, and seems to depend on an epidemic influence. It is said by BROUSSAIS to have prevailed in this way among the French troops in Germany, Holland, and Italy, and we know that such has often been the case, as regards it in the shape of puerperal fever in this country and elsewhere. What is

very extraordinary, it is represented in all such instances, to have proved contagious, of which, however, we are utterly incredulous.

Gastritis, enteritis, and cholic, are the only cases with which peritoneal inflammation may be confounded. These affections have, indeed, so many common points of resemblance that it requires some nicety of discrimination to determine positively. Happily, however, in most instances they exact, to a certain extent, an identity of remedies.

The most striking and unequivocal diagnostic of peritonitis is afforded by the circumstance that whatever may be the degree of uneasiness, there is no inclination to go to stool, nor any direct mitigation of pain by alvine discharges. To this we may add that the patient lies constantly on his back, with his knees drawn up, throwing the weight of the intestines on the spine, and the abdominal muscles are relaxed—two circumstances by which much relief is afforded. The pain too is more steady than in cholic, and more pungent than in enteritis, and is always increased by the erect posture as well as by deep inspirations.

In cholic the pain is, moreover, mitigated by pressure, and hence the patient instinctively, as it were, compresses his abdomen with his hands or lies in a supine position, and exactly the reverse happens in peritonitis. As regards gastritis, there is no difficulty whatever where the mucous tissue is only affected. But the peritoneal covering becoming involved, the diagnosis in some instances is very obscure, and in fact, there is no essential difference in the two diseases.

Concerning the prognosis when unfavourable, this may perhaps be sufficiently collected from the history which we have given of the progress of the disease. Yet there is one circumstance to which we cannot forbear to call attention as peculiarly delusive. As formerly mentioned it sometimes happens, that at the very height of the disease the pain and other symptoms suddenly cease, raising the hope of its being subdued. Never have we known such an event without its proving the precursor of gangrene and death. By such an

occurrence we ought only to be encouraged, when the cessation is gradual and accompanied by a correspondent improvement in all the rest of the symptoms, as the cleaning of the tongue, subsidence of gastric distress, freedom of the bowels, the kidneys, and skin, with an ability to lie in any position.

Examinations *after death* very clearly reveal the nature of the disease. The peritoneum presents, in a greater or less degree, the phenomena of inflammation and its consequences where the attack has been violent, or improperly managed. The more ordinary appearances to be met with are extravasations and effusions, sometimes of grumous blood, or bloody sanies, sometimes of serum of different colours and purity, and sometimes pus, more or less concocted. Gangrene is common, though ulceration never takes place in recent inflammations even where purulent matter is formed. It is here secreted by the vessels, as in many other cases without any breach of continuity in the membrane.

We are told by some writers, which, if it be true, is very curious, that the inflammation in that part of the peritoneum lining the parietes of the abdomen, never penetrates beyond the membrane itself, while the reverse occurs as regards the abdominal contents; and particularly the intestines, all the coats of these being found, in many instances, completely involved in the disease. This is the more extraordinary as *juxta position* seems to have a considerable influence in inducing parts to participate in each others affections. Textures, however dissimilar, and wholly independent of nervous connection, are thus brought into disease. Cutaneous inflammation of the chest will extend itself to the intercostal muscles, from these to the pleura costalis, from it to the immediate envelope of the lungs, and thence into the very substance of these organs. The same holds as regards the other cavities. Even the interposition of bone itself is no barrier, as we see erysipelas of the scalp, ultimately reaching the encephalon.

Now and then there is no redness in the peritoneum, which, however, does not prove that inflammation has not existed. Death operates here, in withdrawing the blood from

the capillaries, as in erysipelas, scarlatina, morbilli, and many other affections—or there may not have been any red inflammation, the serous vessels being only affected. Yet, we are assured, under such circumstances, of inflammation having prevailed, as well by the symptoms as the signs, such as change of structure, effusions of serum, extravasations of lymph, and false adhesions.

It would seem that little doubt can be entertained as to the practice to be pursued in this disease. But such is not the fact. As respects no case of a simple character, has the treatment hitherto perhaps been more disputed and unsettled. While it was alleged by some that the liberal use of opium offers the only means of cure, its utility is altogether denied by others, who urge the lancet and its auxiliaries. Nor was this controversy among the lower members of the profession. Not a few of the most distinguished practitioners, on the contrary, were arrayed on opposite sides. The school of London formerly entertained some peculiar notions relative to the nature of peritoneal inflammation—and by its disciples it was that the opiate practice was preferred.

Theory apart, we have no distrust, as to the best mode of curing the disease. It has been our lot to encounter it very often by a course of practice with which we have reason to be satisfied.

In the early stage the lancet is to be pushed as far as can possibly be done consistently with the strength of the patient. The pulse here is not strictly to be regarded, being seldom or never very active or strong, and probably is depressed, in proportion as the attack is violent, and the remedy consequently demanded. Nor are we to be intimidated by the appearances of debility. It is a state uniformly incident to the disease, in a greater or less degree, and may be expected to be overcome by similar measures.

We have a case of phlogosis, rapid in its progress, and which when not timely arrested, inevitably proves fatal. Keeping this in view, twenty-five or thirty ounces of blood ought to be taken away, and if not productive of much relief let the operation be repeated to an extent according to the emer-

gency, in the course of the day. Depletion by the lancet, however, though indispensably necessary, will not uniformly cure peritonitis. It keeps the disease under without exterminating it. Locally detracting blood, at this stage, by leeches is more effectual, and should never be omitted where it is practicable. To answer the purpose the application requires to be large, so that eight or ten ounces of blood at a time may thus be drawn off.

Of blisters, scarcely less has been said than of venesection. Led by our own experience, we should pronounce them to be very beneficial, when well timed. Too early applied they always do harm. They should uniformly be preceded by warm fomentations to the abdomen, and by a good deal of direct depletion. The latter is a rule to be observed, with regard to them, under all circumstances, and to the neglect of which, the injury from increased irritation, alleged to arise, must be ascribed.

In place of these topical measures, and more especially fomentations, cold applications to the abdomen have recently been proposed, by several of the British writers. This seems to be rather the suggestion of theory, than the result of actual experience. By one practitioner only, Dr. Abercrombie, do they appear to have been actually tried, and he speaks very confidently of their superior utility. Yet we confess, we are distrustful, and should recur to them with great hesitation. Certain structures modify exceedingly the nature of inflammation, and constitute exceptions to the general applicability of cold as a remedial resource. Confessedly such is the case as regards the acute affections of the lungs, and it is not less so in relation to those of the abdominal contents, and particularly of the intestines and peritoneum.

Of the diseases, in which an attention to the bowels does not constitute a leading indication, peritonitis has been considered as one. It has already been remarked, that however great the pain, there is no inclination to stool—nor do evacuations of this sort produce in these instances, any immediate relief. By some writers indeed, purging is altogether condemned, as proving either nugatory or mischievous by the

irritation of which it is productive. This is the doctrine of Abercrombie, in which he is in part sustained by Broussais, who limits its use to the close of the acute stage, "because," says he, "the vermicular contractions which it excites in the intestines, must increase the morbid sensibility of the peritoneum." But such is not the established practice. Most of the best authorities advise, that the bowels should be kept in a soluble state, and with this view large enemata are preferred. We go much further, and insist on the propriety and utility of active and continued purging.

It is now acknowledged that this constitutes one of the most efficient measures in puerperal fever, and we cannot perceive why it should not be as well suited to ordinary peritonitis. Entertaining the conviction we have stated on this point, it has uniformly been our practice thoroughly to evacuate the bowels, and unless we are greatly deceived with decisive advantage. No reason is apparent to us, why inflammation of this membrane should not be reduced by such evacuations, as well as of any other tissue of the body—and the result, we think, very clearly demonstrates it. It has the effect of reducing the volume and force of the general circulation—it unloads the bowels, dislodging in many instances, indurated fæcal matter, confined by the spasmodic constrictions, from inflammation, of the muscular coat—it operates by diverting action from the peritoneum to the mucous tissue of the intestines, and especially by emptying the capillary vessels of the inflamed surfaces. Nor can we agree with those, who though they generally advocate this practice, withhold it, where the mucous lining of the bowels is phlogosed. We can discern no reason for such a limitation. Do we not purge in enteritis, in acute diarrhœa, and in dysentery, where this membrane is in the highest state of inflammation, and why not under similar circumstances of it in peritonitis? The best purgative in this case is castor oil and the spirit of turpentine in the proportion of an ounce to a drachm.

Evacuations, such as has been described, proving inadequate, we are next to endeavour to excite perspiration. This sometimes operates like a charm. Diaphoretics, probably act

here, with a centrifugal force, driving out the blood from the inflamed membrane, and determining it to the surface of the body, and at the same time, changing the state of the capillaries, so deeply implicated in the disease. To induce sweating, Dover's powder, aided by the vapour bath, answers best. On this part of the treatment, we wish to speak with some emphasis, having, we repeat, witnessed its most signal utility.

Not being checked, we have next the sinking condition, attended by some of the manifestations of incipient gangrene. Combinations of opium and calomel are said to have been productive of much good, though the spirit of turpentine, of late very greatly extolled, incomparably more so. The use of this article in puerperal fever, connected with peritoneal inflammation, has been for some years well known. What would be the effect of it, in the height of the disease, as used by Dr. BRENNAN, our own experience does not enable us to determine. But we are convinced, under the particular circumstances before us, it is exactly the remedy on which we should rely. Long before the publication of the writer whom we have just cited, turpentine was employed by us in the advanced stage of peritonitis. As early as 1812, we prescribed it in consultation with the late Professor Wistar, in the case of a child. To relieve the tympanitic state of the abdomen, which is nearly always present at this time, the terebinthinate enema becomes peculiarly appropriate.

Concerning regimen, we have only to observe, that the diet should consist exclusively of mucilaginous beverages, and that a state of absolute rest and quietude, with free ventilation, must be studiously observed.

The practice, in acute peritoneal inflammation, has now been detailed. As before intimated, this is a case replete with danger, intrinsically so increased, however, in many instances, by adventitious causes. It sometimes happens, that the disease is too indistinctly marked in the commencement, to apprise us of its nature. Cases have occurred, without any local pain or other distinctive sign of its existence. Even in the earliest stage, it often counterfeits such extreme debility, with a pulse so feeble, attended by so many of the other characteristics of

the typhoid condition, as to induce us to stimulate actively, instead of depleting. This is a locked-up condition, the system being *depressed*, and not exhausted. We are told, however, by some of the foreign writers, that it will not do, at first, to evacuate freely, especially by venesection. Cases may possibly occur abroad, in crowded hospitals, or in other scenes of squalid wretchedness and ill ventilation, to forbid the practice, though such have not come under our notice. But should they be presented, we must develope action, by the warm bath and frictions, the mild diaphoretics, moderate purging and topical bleeding. Having accomplished this end, we may then boldly urge the lancet, and its co-operating measures.

Common acute peritonitis is rapid in its progress, usually terminating in eight or ten days, and when fatally, for the most part in gangrene. Complete recoveries taking place, it is by resolution. But in less perfect cures, there is effusion constituting ascites in different degrees—or, the inflammation partially subdued, becomes *sub-acute*, which not being cured, ultimately degenerates into what is denominated *chronic peritonitis*.

Besides this, however, there is another chronic form of the disease, primary in its nature, which steals on slowly—so obscure and ill-defined, as to afford little or no premonition of its existence, and is far more intractable in the management.

It will be making its approaches gradually for weeks, and according to PEMBERTON in some instances even for months, without being attended by any one circumstance to excite alarm, or to create a suspicion of what is happening. Commonly, however, there is felt, in the beginning, some occasional soreness of the abdomen, which is perfectly distinct from flatulence, or tormina, or other ordinary uneasiness of the bowels. The patient, according to the writer cited above, complains of “a certain degree of tightness and pinching soreness across the abdomen, from one os ilium to the other.” “There is not,” continues he, “any tension of the skin of the abdomen as in the acute species: on the contrary, I have more than once observed the skin and abdominal muscles to

sit loosely on the peritoneum, which has given a sensation to the touch as of a tight bandage underneath, upon which the skin and muscles may be said as it were to slide. The patient always complains more of tightness than of pain, and this tightness is much increased by any congestion of the bowels, the relief which he experiences from evacuating their contents leads him to attribute his sensations to an habitual costiveness." There is a sensation mentioned by Broussais as occasionally present, which we have never observed, "as though a ball were rolling in the abdomen, sometimes approaching the throat."

The state of the bowels is opposite, either constipated or relaxed, though in the commencement the former is more common, the stools indicating the absence of bile. Digestion is usually depraved, appetite impaired, and nausea, and even vomiting take place, especially in those cases, we presume, where the peritoneum reflected over the stomach is affected. The pulse is nearly natural or considerably accelerated, and the tongue always more or less furred in the morning. Thirst is a good deal complained of, though there is no apparent fever, or even-heat of the surface. The face, on the contrary, is pale or sallow, with an expression of languor and distress. Cough, and some slight dyspnœa are sometimes present, excited more particularly by the recumbent position. Towards evening œdema of the lower extremities appears.

In this state the person may continue up, prosecuting his ordinary avocations for a length of time, in many instances, till by some cause, more or less activity of inflammation is raised. There is now an increase of pain, attended sometimes with tension of the abdomen, increased anorexia, gastric disorder, constipation of the bowels, and slight fever, occasionally exacerbated, particularly in the evening. In other instances the disease pursues a silent and more even tenored course, little varied by any sensible exasperation or mitigation till it has deeply implanted itself, and produced great and perhaps irremediable mischief by the disorganization of important structures. It is worthy of remark that certain tissues, which, under ordinary circumstances, betray the

slightest irritation or inflammation by acuteness of pain and other signs, will, when gradually affected in this way, suffer the most extensive ravages, without any manifestation whatever of the morbid process.

By Morgagni, we are told, and the same has been abundantly confirmed, that the pleura itself, ordinarily one of the most sensible of the membranes, has been found entirely destroyed by suppuration, from chronic inflammation, where no intimation by pain was given of what was going on. The same may happen with regard to the peritoneum, and it is right that it should be known, so that we may be put on our guard, and watch with greater care, the march of a disease, capable, in some instances, of such a disguise.

Not being checked, the form of peritonitis, now under consideration, proceeds step by step, breaking down more and more, the integrity of the constitution, till the whole is involved in a general cachexy, marked by the symptoms incident to this depraved condition. Examined at this period, we shall find more particularly, slow, diminutive fever of the hectic character, sallow complexion, doughy countenance, constant uneasiness of the abdomen, with more or less intumescence, proceeding either from thickening of the peritoneum, or dropsical accumulations in its cavity with its *cutaneous vessels much enlarged by congestion*, assuming, in some instances, a varicose appearance. Diarrhœa is also often associated with the advanced stage of the disease, and there are almost uniformly swellings of the feet and legs.

Chronic peritonitis, which succeeds to the acute, is to be considered as owing to the imperfect cure of the original case. But the other species proceeds from causes which we are now to enumerate. It may generally be traced to the circumstances inducing the acute form of the disease, operating on an old or debilitated frame, or one cold and phlegmatic, so that the impression created is slower and less intense. We learn, however, from the European authorities, that it prevails mostly among the lower classes of people, and is supposed to be intimately dependent on their peculiar condition, habits, and occupations, such as improper food,

living in damp situations, working in postures of the body which compress the abdomen, &c. Whether it be so our own experience does not enable us to decide. But it seems probable, that the moist, austere cold of such positions, is the principal cause. Drunkenness, in this city, most undoubtedly in nearly every instance, lays at least the predisposition to the disease. We commonly meet with it among the patients of our Alms House of this description, and very rarely under any other circumstances. Now and then, however, we have seen it as the result of protracted intermittents from miasmatic districts, connected with obstruction of the liver or spleen, &c.

Dissections reveal, in these cases, such appearances as might be anticipated from the nature of the disease, corresponding to its vehemence and length of continuance. Exudations of coagulable lymph adhering to the peritoneum, as an adventitious coat, or forming adhesions with contiguous parts, a thickening of the membrane itself, and other changes of structure in it—as a granulated or tuberculated surface—hydatids attached to it, and various ulcerations—the intestines so agglutinated as to be consolidated into one mass, with much similar disorganization in other parts—to which we shall finally add, serous effusions, or a whitish fluid like curdled milk, have all been observed by the cultivators of morbid anatomy.

As to the diagnosis in this species of peritonitis, though sometimes obscure, it may be generally collected from a careful attention to the history of the disease. Little or no local pain or tenderness existing on ordinary pressure, it has been suggested to make lateral pressure towards the centre of the abdomen. This, however, is only adapted to cases, in which the parietes of the abdomen in front are thickened by depositions of adipose matter, &c. The diagnostics in the acute are as nearly applicable to the chronic disease.

Touching the prognosis, it may be remarked, that the curability or incurability of the case, must depend mainly on the stage of it. Though always difficult, it is generally curable, where no essential structural derangement has taken place.

But such utter disorganization existing as we have described, what can be hoped from any plan of treatment, however sagaciously devised or skilfully conducted? Death, under such circumstances, must inevitably be the result in a large proportion of instances. Life, however, is indefinitely protracted in the disease, for months or years.

The treatment of chronic peritonitis is divided into that which is proper in the early, and such as is appropriate to the subsequent stages. Being persuaded of the existence of inflammation, all our endeavours should be directed to its prompt reduction, tempering, however, the remedies, according to the state of the system. These have been enumerated under a preceding head, consisting chiefly of more moderate venesection, occasionally repeated, topical bleeding by leeches, a succession of blisters, fomentations or the warm bath, absolute rest, and the whole antiphlogistic course strictly pursued.

What is best to be done after disorganizations have taken place, we are embarrassed to say. The French authorities pronounce the case to be irremediable, and this is probably true on the whole. Yet recoveries sometimes are effected, and as it is impossible to ascertain the extent of the organic lesions, no case ought to be abandoned in despair. Continuing the strictly regulated regimen as above, we would give small doses of calomel and ipecacuanha as alteratives, with opium to allay irritation, and should there be any effusions or hydropic tendencies, intermix the diuretic measures.

QUARTERLY PERISCOPE.

EUROPEAN INTELLIGENCE.

SURGERY.

Fistula cured by the Chlorate of Lime.—Jean Christien Lemmann, aged 16, of a lymphatic temperament, after much fatigue, on the 9th February, began to feel considerable pain in the calf of the left leg. Three months afterwards, the pain having continued to be felt, a phlyctæna appeared about the third of the way down the leg, behind the upper edge of the fibula; and opening itself, discharged a mixture of blackish serum and pus, the suppuration continuing for some time; the opening, however, being repeatedly closed and re-opened. On the 4th November the patient came into the hospital of La Pitié. The external orifice of the fistula was found to be of small extent, and its depth about three inches, almost transversely as to the axis of the leg. The bones were not diseased; nothing was felt by the probe but the soft parts; and a considerable quantity of sanious pus was discharged daily: for the space of about two inches all round it, there was a little swelling, redness, and tenderness to the touch. The treatment was commenced by emollient poultices; after which a compressing and expulsive bandage was resorted to; but no benefit was obtained; the suppuration increased, and continued very unhealthy. Mr. Lisfranc then prescribed injections of chlorate of lime, to be made by means of a small syringe. This application did not at first excite any pain, and it was continued for four days, during which time the suppuration became more abundant, but improved in quality; a little increase of pain was now caused, as well as of swelling and redness, and even symptoms of inflammatory fever; and the use of the chlorate of lime was suspended, it having produced the desired effect, that

of changing the mode of vitality in the fistulous tract. Emollient poultices were again applied, and the inflammation decreased, the suppuration now at the same time diminishing; and when almost every symptom of irritation had disappeared, a compressing bandage, which was employed for the four last days, completed the cure on the 25th November; the disease having for nine months previously resisted the ordinary measures.—*Rev. Méd. Janvier 1826.*

Extirpation of the Alveolar Arches of the Lower and Upper Jaw.—Dr. George Regnoli of Forli, relates the following case, which we have, however, greatly abridged. On returning from Fossombrone, he was asked to see a poor woman, named Frances Rovinella, about thirty-five years of age, and the mother of four children, whose complaint was supposed to be incurable. The history of her disease was as follows:—She had suffered, from her infancy, violent pains in her teeth; the first set all became carious, and, falling out in separate pieces, were succeeded by the second dentition; these soon became also diseased: and, added to this, she was subject to repeated attacks of erysipelas about the head and neck. For about a year, however, the patient had escaped any attack of this kind; but, about November 1824, she was seized with a violent pain in the head, for which she took no remedy. At this time, whilst labouring under pain, tumefaction, and redness of the gums, caries of the teeth, and alveoli of both jaws, she discovered that, opposite to the last molar tooth of the right side in the lower jaw, a little tumor existed, which speedily increased and ulcerated. This ulceration took possession of the alveoli and of the gums, both within and without, leaving untouched, however, the last molar tooth on the left side, which was not carious. Three months later, a similar fungus made its appearance on the corresponding part of the upper jaw on the right side, which spread with even greater rapidity, not leaving any of the teeth free from it.

On examining the woman, Dr. Regnoli perceived that there was an enormous enlargement of both the alveolar arches; a reddish and bloody fungus, which arose from the alveoli, and from the gums interiorly and exteriorly, so as to cover and hide the teeth. The alveoli were ulcerated and soft, even down to the very roots of the teeth, both within as well as outwardly, in both

jaws; the cavity of the mouth was much diminished by the swellings, each of them exceeding the size of the thumb: it was easy, by means of the finger, to discover the limits of the disease. The woman complained of pain, increased during mastication; the fungous substances bled at the least touch, and poured out a fetid ichor; and the health began to be affected. Nevertheless, the tongue, throat, and all the soft parts, appeared to be free from disease.

Dr. Regnoli persuaded this woman to enter into the hospital at Pesaro, for the purpose of submitting to an operation; and after being subjected for a few days to a proper regimen, and having been purged, the operation was performed on the 18th of May, 1825, in the presence of several physicians and surgeons. The patient was seated facing the light; the head supported upon the breast of an assistant, who at the same time made pressure upon the labial arteries, (*submaxillary?*) The operator then divided the whole of the lower lip, and detached it in a great measure from the lower jaw, in order to expose the fungus; he then cut circularly the soft parts and periosteum below all the alveoli in which the bone was healthy; and upon the fore and more prominent part of the chin, he employed a few strokes of the saw. At this point he inserted a strong cutting scalpel into the groove made by the saw, which he drove in with a few blows, with a hammer, first directed to the left and then to the right side; the assistant, in the mean time, drew the jaw downwards and forwards; and the whole osteo-sarcoma was now removed, by merely dividing the soft parts adhering to the internal and concave part of the bone. The last molar tooth on the left side was, however, left untouched, but it did not show any marks of disease. The arterial branches, which bled profusely, were touched with the actual cautery, as were also the remaining parts in which any suspicious appearance was observed. The removal of the alveolar arch of the upper jaw was performed in the same manner; and the hemorrhage was arrested by the same means. The lower lip was then brought together with three needles, united by the twisted suture. At this time the patient fainted, but was soon restored.

The symptoms that succeeded the operation were, for the first days, severe pain in the head, and consequent deprivation of sleep, with fever, and considerable swelling of the face; which

were all overcome on the sixth day, by bleeding, purging, and proper diet. On the 28th day, the cicatrisation of the wound was complete; a few pieces of dead bone having been removed some days previously. The appearance of the patient presented but little deformity, the lips turning inwards, but in no great degree; the speech is also somewhat altered; but she was able to eat even bread and meat, was free from pain; and the cicatrix of the alveolar borders was hard and equal, and they could bear to be pressed against each other without producing pain.—*Annali Universali*.

On the Application of the Actual Cautery in the Erysipelas following Wounds.—“The actual cautery, (says Mr. Larry,) applied to the points reddest and nearest the wound, stops instantly the progress of the inflammation. This application, which causes scarcely any pain, is immediately followed by a gaseous effluvium, of an animal odour, rendered visible by a slight smoke which surrounds it, and by the disappearance of the redness, tense pain, and swelling of the parts. These cauterisations are not followed by suppuration, and are not capable of producing gangrene, as rubefacients are. The burnt parts of the cutis fall off in little charred scales, leaving no sensible cicatrix. The flow of pus from the wound, the suppression of which had preceded the erysipelas, is almost immediately restored; the strength of the patient increases; the weakened functions of the viscera, particularly the stomach, are strengthened, and thus concur in bringing the disease to a resolution.”

Mr. Larry does not attempt to explain the effects of the cautery; he only wishes to draw the attention of practitioners to the fact: he accounts, however, for some of the effects of the actual cautery. Its causing no sensible pain, he believes to arise from a coating, more or less thick, of a network of vessels, injected and covered with the epidermis already disorganised: which coating, he thinks, isolates and protects the nervous tissue of the skin. The burns do not suppurate, because the cautery has equally spared the sensible tissue of the skin, in which are found the only arterial vessels susceptible of producing suppuration; and, the skin itself not being broken, no cicatrix is left.

He relates two cases where the erysipelas, and adynamic fe-

vers which accompanied it, disappeared, as if by enchantment. In the first case, six days after a contused wound of the right leg, the edges of the wound took on an erysipelatous character, and a general nervous affection showed itself. The erysipelas enlarged, and soon covered the whole limb and foot, which swelled. On the eleventh day, well-marked red lines stretched up the thigh, and little gangrenous spots showed themselves around the wound. The sensibility of the limb was considerably diminished: it was much puffed, and of a reddish violet colour. There were present nausea, vertigo, and much disturbance from the weight and tightness of the limb; pulse small and feverish; tongue black and dry; eyes dull and tearful; urine in small quantity, and black. A vomit was given, and some diluents; the limb wrapped in compresses, moistened with camphorated vinegar. At the next visit, finding the erysipelas in the same state, and the patient in much danger, it was decided to use the actual cautery to all the principal points of the erysipelatous swelling; beginning by the red bands on the thigh, then gradually coming to the knee, and leg, and foot, taking care to leave considerable distances between the cauterised points, and to end where the skin was adherent to the bony projections. Fifty little knobs of red hot iron were thus applied in less than ten seconds; and a moxa was used on the epigastrium. Compresses, with the camphorated vinegar, were applied. Low diet. At the next visit, the erysipelas was almost entirely gone, and the swelling of the limb considerably reduced; good suppuration was established in the wound; tongue had become moist, and cleaner; and the patient was so much improved, that, though not able to speak on the previous night, he now loudly said he was better. The same day he had some dark and extremely fetid alvine evacuations. In less than three days, all symptoms of the erysipelas had disappeared; and shortly after the patient left the hospital. The burnings were not followed by suppuration, and no cicatrices were left.

The other case was an erysipelatous affection of the scalp, where the application of the cautery was equally advantageous.
—*Revue Med.*

Extirpation of the Neck of the Uterus.—Mr. Lisfranc gave an account, at a late meeting of the Royal Academy of Medicine,

of a case in which he had lately performed the above operation. The part was greatly tumefied, and in a carcinomatous condition. Hemorrhage, not sufficiently violent to call for any extraordinary measures, persisted for some days, and probably prevented the occurrence of any other accidents. The woman is, in fact, in complete convalescence.—*Archives Generales.*

THEORY AND PRACTICE OF MEDICINE AND MATERIA MEDICA.

Employment of Extract of Belladonna in Cases of extreme sensibility of the Eyes.—Marche, aged 49, of sanguine temperament had suffered twelve days from ophthalmia of the right eye, which he could not trace to any particular cause. The ocular mucous membrane was red, and the pupil, which was contracted, became obliterated when the eye was exposed to a feeble light; the pain, which had been so great as to prevent sleep, being at the same time greatly augmented. Recourse was twice had to general bleeding; twenty-five leeches were applied to the temples, and stimulating pediluvia were employed, by which means the inflammatory symptoms were for the most part subdued; but the pain and contraction continued, and did not allow the patient the least rest. Frictions was then employed at the base of the orbit, with extract of belladonna, diluted with water. Two hours after the first application the pain was less severe, the pupil began to dilate, and the patient was able to sleep. The next day the benefit was more marked, and the pain decreased, and the pupil dilated daily, the patient being enabled to bear increasing degrees of light: and on the eighth day of the employment of the belladonna, the cure was so complete, that no difference could be seen between the eye that had been affected and the other.

Caroline Henry, aged 18, of a lymphatic temperament, had for some time had diseased eyes, partly attributable to her trade as a mantua-maker; and her menstruation had always been irregular. Being attacked with simple acute ophthalmia, she had recourse to cold lotions, which, after some days' continuance, checked the lachrymation, redness of the conjunctiva, and tumefaction of the eyelids; but considerable pain remained, and, above all, a sensibility to light, which prevented the patient from opening her eyes in the daytime. On this account she became a patient of La Pitié. As very little inflammation was found to

remain, frictions with the belladonna were immediately employed, and in six days all the symptoms were completely dispersed.

Joseph Festori, aged 20, *fumiste*, (curer of smoky chimnies,) of a lymphatic temperament, and subject to ophthalmia, had a severe return of one attack, and came into the hospital. His eyes were red, painful, dry, burning; the lids œdematous; and he had head-ache. These symptoms were successfully combated by antiphlogistics, by two bleedings from the arm, of twelve ounces each, and by the application of fifty leeches to the temples. Revulsives directed to the intestinal canal produced a good effect. Nevertheless, although the inflammatory symptoms yielded for the most part, much pain of the eyes remained, with troublesome lachrymation, and marked contraction of the pupil; and the least light or brightness was insupportable. Mr. Lisfranc ordered frictions with the belladonna, and an immediate amendment took place; so that at the end of five days the pupil was no longer contracted, and there was no lachrymation nor pain.—*Rev. Med. Janvier* 1826.

Hydrophobia.—"Although there have been many instances of considerable disease having been produced by the bite of an enraged animal, I have never heard that rabies has been the result of such bite, nor do I believe it possible; or that the excitation produced by the most protracted combat can degenerate into rabies: but there is a view of the subject, in which the prevalence of rabies does materially depend on the disgraceful practice of dog-fighting.

"The symptoms of rabies differ in different varieties of dogs, and in dogs of the same variety, according to their previous disposition and habits. In all there are usually considerable peevishness and pettishness; but in some breeds, where the tractability and docility of the animal have been cultivated, that pettishness is a mere momentary impulse, which may be easily guarded against when the nature of the malady is suspected; and, often, the disease runs its course, in the spaniel particularly, without one attempt to break from confinement, or to injure those to whom the dog has been attached.

"The bull-dog and the different varieties of the fighting terrier are naturally ferocious. That ferocity is diligently cultivated for a brutal purpose, and the peculiar excitation of the dis-

ease increases in a tenfold degree the natural and acquired ferocity of the animal. If he recognises, he obeys not the voice of his master: he scorns all control: his efforts to escape from confinement are violent and incessant; and when he has effected his purpose, he ranges through the country, eagerly seeking his prey. At first his attacks are confined to his own species, but his irresistible desire for mischief increasing with its gratification, he at length falls with indiscriminate fury on every animal that comes in his way.

“There is no fact capable of clearer proof, than that the danger to be apprehended from a rabid dog, and the mischief which, (*cæteris paribus*,) he effects, are in precise ratio with his natural or acquired ferocity; and the experience of fourteen years, and the inspection of nearly a thousand cases of rabies, enable me confidently to affirm, that, in the neighbourhood of the metropolis at least, by fighting dogs, in a tenfold greater degree than by any other breed, is this dreadful malady propagated.

“In the country, likewise, the terrier and the bull-dog are the principal agents in the work of destruction; although the cur is there often an active ally. His education and habits sufficiently account for this. Coward as he is, it is his employment and his pleasure to attack every passing object, whether man, horse, or dog; and when he unfortunately labours under a disease which gives ferocity to the brave, and fearlessness of danger to the poltroon, the mischief which he will effect may be easily guessed.

“It is for these reasons, and with these limitations, that I attribute canine madness chiefly to the prevailing and disgraceful practice of dog-fighting; and so far as my argument goes, I concur in the conclusion, that it is in the power of the legislature, by discouraging these worse than useless breeds of dogs, to circumscribe and almost to annihilate this fearful and destructive pest.”

Mr. Youatt next proceeds to state that rabies is more prevalent in some seasons and districts than in others, and that more cases of it have occurred in the two last years than in the four or five preceding ones. This circumstance he cannot, however, otherwise account for, than by supposing that there may be some states of the atmosphere peculiarly favourable to the propagation of this as well as of other animal poisons, as in the instances

of small-pox, measles, &c. He does not consider that canine madness is now spontaneously generated; but that having at one time originated in some morbid state of the constitution, it is now propagated by contagion or inoculation alone. Respecting this part of his subject, and the symptoms of rabies in the dog, Mr. Youatt gives us the following very precise information. As we know that his experience of rabies in this animal is perhaps unequalled, we shall make no apology to our readers for the length of the quotation. It is of the utmost consequence to the medical practitioner that he have an accurate idea of the symptoms of rabies in this interesting animal, and on this account we are anxious to furnish him with what we consider the very best information on the subject.

“In proof that rabies canina is thus propagated, (by contagion or inoculation,) and thus alone, I might contend that it was never known to occur spontaneously in the horse, in cattle, in sheep, or in the human subject. There is, indeed, a tetanic, or hysterical, or nervous affection in the latter, which is characterised by some of the symptoms of rabies, and occasionally even by the dread of water; but there is an essential difference in the commencement, progress, and termination of the two diseases. I might contend that there are many parts of the globe where the supposed exciting causes of rabies exert their fullest energy, and where that malady is unknown; and that to the majority of islands in every quarter of the world it has not yet found its way. I might contend that, in all the cases which I have seen, with the exception of certainly not more than thirty, the disease was clearly traced to the bite of a rabid animal; that in a great majority of the excepted cases, the animal had been in the way of dogs, and might possibly have been bitten; that in not more than two or three did the owner stoutly maintain that a bite was impossible; and that, even in them, I was far from being convinced of that impossibility.

“It is a question which can be determined by facts alone; and I believe that the only reason why there is not an universal agreement as to these facts is, that the characteristic symptoms of rabies in the dog are not determined. That which many term “rabies” may be, and I imagine would be, found to be tetanus, or epilepsy, or phrenitis, or distemper. With the exception of the excellent publication of Mr. Blaine, (I except not Mr. Gil-

man's Treatise, for all his information on the symptoms of canine madness, was borrowed, without acknowledgment, from Mr. Blaine,) we have no authority to guide us. The only method then by which we can arrive at a satisfactory conclusion is, to agree on the *nosology* of the disease; to determine what are its symptoms in the living animal, and its morbid appearances in the dead one; and then inquire whether the disease so characterised has now a spontaneous origin, or is to be invariably attributed to contagion.

“The symptoms of rabies in the dog are the following, and nearly in the order in which they usually appear:—An earnest licking, or scratching, or rubbing of some particular part; sullenness, and a disposition to hide from observation; considerable costiveness and occasional vomiting; an eager search for indigestible substances—as bits of thread, hair, straw, and dung; an occasional inclination to eat its own dung, and a general propensity to lap its own urine. The two last are perfectly characteristic circumstances. The dog becomes irritable; quarrels with his companions; eagerly hunts and worries the cat; mumbles the hand or foot of its master, or perhaps suddenly bites it, and then crouches and asks pardon. As the disease proceeds, the eyes become red; they have a peculiar bright and fierce expression; some degree of strabismus or squinting very early appears; not the protrusion of the *membrana nictitans*, or haw, over the eye, which, in distemper, often gives the appearance of squinting, but an actual distortion of the eyes; the lid of one eye is evidently more contracted than the other; twitchings occur round that eye; they gradually spread over that cheek, and finally over the whole face. In the latter stages of the disease that eye frequently assumes a dull green colour, and at length becomes a mass of ulceration.

“After the second day the dog usually begins to lose a perfect control over the voluntary muscles. He catches at his food with an eager snap, as if uncertain whether he could seize it; and he often fails in the attempt. He either bolts his meat almost unchewed, or in the attempt to chew it, suffers it to drop from his mouth. This want of power over the muscles of the jaw, tongue, and throat increases, until the lower jaw becomes dependent, the tongue protrudes from the mouth, and is of a dark and almost black colour. The animal is able, however, by

a sudden convulsive effort, to close his jaws, and to inflict a severe bite.

“The dog is in incessant action: he scrapes his bed together, disposes it under him in various forms, shifts his posture every instant—starts up, and eagerly gazes at some real or imaginary object: a peculiar kind of delirium comes on: he traces the fancied path of some imaginary object floating around him: he fixes his gaze intently on some spot in the wall or partition, and suddenly plunges and snaps at it: his eyes then close and his head droops; but the next moment he starts again to renewed activity: he is in an instant recalled from his delirium by the voice of his master, and listens attentively to his commands; but as soon as his master ceases to address him, he relapses into his former mental wandering.

“His thirst is excessive, (there is no hydrophobia in the dog,) and the power over the muscles concerned in deglutition being impaired, he plunges his face into the water, up to the very eyes, and assiduously, but ineffectually, attempts to lap.

“His desire to do mischief depends much on his previous disposition and habits. I have known it to proceed not beyond an occasional snap, and then only when purposely irritated: but with the fighting dog the scene is often terrific. He springs to the end of his chain—he darts with ferocity at some object which he conceives to be within his reach—he diligently tears to pieces every thing around him; the carpet or rug is shaken with savage violence; the door or partition is gnawed asunder; and so eager is he in this work of demolition, and so regardless of bodily pain, that he not unfrequently breaks one or all of his tusks. If he effects his escape, he wanders about, sometimes merely attacking those dogs which fall in his way, and at other times he diligently and perseveringly hunts out his prey: he overcomes every obstacle to effect his purpose; and, unless he has been detected in his march of death, he returns in about four and twenty hours, completely exhausted, to the habitation of his master.

“He frequently utters a short and peculiar howl, which, if once heard, can rarely be forgotten; or if he barks, it is a short, hoarse, inward sound, altogether dissimilar from his usual tone. In the latter stages of the disease a viscid saliva flows from his mouth, with which the surface of the water that may be placed

before him is covered in a few minutes, and his breathing is attended with a harsh grating sound, as if impeded by the accumulation of phlegm in the respiratory passages.

“The loss of power over the voluntary muscles extends after the third day through his whole frame, and is particularly evident in the loins: he staggers in his gait; there is an uncertainty in all his motions; and he frequently falls not only when he attempts to walk, but when he stands balancing himself as well as he can. On the fourth or fifth day of the disease he dies, sometimes in convulsions, but more frequently without a struggle.

“After death there will invariably be found more or less inflammation of the mucous coat of the stomach; sometimes confined to the rugæ, at other times in patches; generally with spots of extravasated blood, and occasionally intense and occupying the whole of that viscus. The stomach will likewise contain some portion of indigestible matter, (hair, straw, dung,) and occasionally it will be completely filled and distended by an incongruous mass. The lungs will usually present appearances of inflammation, more intense in one, and generally the left lung, than in the other. Some particular points and patches will be of a deep colour, while the neighbouring portions are unaffected. The sublingual and parotid glands will be invariably enlarged; and there will also be a certain portion of inflammation, sometimes intense, and at other times assuming only a faint blush, on the edge of the epiglottis, or on the rima glottidis, or in the angle of the larynx at the back of it. If in addition to these or the greater part of these circumstances, it is known that the unfortunate patient bit another animal, which in due time died of a similar disease, the description of rabies is complete.”—*Lond. Med. Rep. May, 1826.*

Hydrophobia.—A pork-butcher, of Beaucaire, was bitten on the 5th June, 1825, in the thumb of the left hand by a little dog. The dog had destroyed some fowls, and was killed without its madness being ascertained. The wound was not considered of much consequence, and cicatrised in five or six days. On the forty-fifth day after receiving the bite, (July 20,) the man complained of pain in the forearm; and towards evening the whole arm, and particularly the deltoid muscle, became insupportably painful. Leeches, and a blister, subdued these suf-

ferings. The next day he complained of severe pain in the lumbar region; it seemed to him, he said, as if a cord was tied round him and pulled with strength sufficient to cut him in two. The pulse was now excited, deglutition began to be difficult, but the patient did not refuse to drink. The respiration became frequent and oppressed. He was bled without relief; and in the course of the morning deglutition became more difficult, and he began to have a horror of liquids. The pain in the loins gave place to similar distress about the thorax. A number of leeches were applied under the clavicles; but the patient was unable to take the whole of an antispasmodic draught. In the evening he was again bled, and sinapisms were applied to his thighs and legs. In the night he began to discharge a great quantity of thick and frothy saliva and mucus. On the third day he was seen by Dr. Plenidoux, who relates the case: he was sitting up by the side of his bed, supported by two of his friends; his mental faculties were undisturbed; his face was very animated; his eyes were sparkling, the pupils much dilated; tongue red and dry: the sub-lingual arteries were engorged, but no vesicles were observed. The saliva was so thick as to be ejected with the utmost difficulty. The pulse was small and frequent, the respiration rattling and sighing, the whole body covered with a cold perspiration; convulsions were excited when any liquid was presented. The patient was now so restless that leeches could not be applied; but he derived relief for a short time from a bag of ice applied round the neck; and took a few spoonful of a mixture of lemon juice and syrup. The symptoms, however, were very soon renewed, and about noon, on the third day of the disease, the patient died. He was not at any time delirious, and seemed to have no suspicion of the connexion of his sufferings with the bite of the dog. The symptoms which seemed even more tormenting to the patient than all the rest, was an insupportable pruritus of the nose, which, on the third day, was so extreme that he rubbed off the epidermis in attempting to gain relief.

Dissection.—The mouth was filled with frothy saliva: the little vesicles spoken of by Marochetti were not present. The interior of the larynx was of a reddish violet colour; its mucous membrane was thicker, and more wrinkled than usual. The colour of the lining membrane of the trachea and of the bronchi

was like that of the larynx. The right lung was healthy—the left a little hepatised, and having some adhesions: the heart was very large, and the quantity of fluid contained in the pericardium was considerable: the cavities of the heart were completely empty. The lining membrane of the œsophagus was somewhat red, but less so than that of the air passages. The stomach was very much inflamed; and its mucous membrane so softened and thickened as to be easily removed by the scalpel. The intestines were natural: the blood vessels of the head were a little injected; but there was nothing remarkable in the appearance of the membranes, or of the brain. The arm which had been affected by the bite was carefully examined, from the thumb to the shoulder, but did not show the slightest traces of inflammation. The muscles of all the upper part of the thorax, and those of the shoulders, were very red; and their veins, as well as those of the neck, gorged with blood. Nothing particular was observed in the lumbar region.—*Rev. Méd.*

Hydrophobia in the Horse.—I had yesterday, (April 25th,) an opportunity of witnessing hydrophobia as it occurs in the horse. The following are the particulars:—

Five weeks ago, a stable dog at Mr. Anderson's bit a coachman, who immediately had the parts cut out and cauterised. During the night, he observed "a great to do" between the dog and horse; and a regular practitioner having been called in, he declared the dog to be rabid, and the animal was destroyed. The horse, which was of a remarkably quiet and docile disposition, did not appear to suffer any inconvenience, till a few days ago, when he became dull; and in the evening of the 24th, he was bled. Next morning, Mr. Bowtall, a respectable veterinary surgeon, was sent for; who informs me that he found the horse very nervous, with a small weak pulse, about forty, (the natural pulse of the horse is from forty to forty-five.) The horse was again bled, and a laxative ball was administered, together with some "fever medicine." He was then removed to Mr. Bowtall's Infirmary.

During the day, his symptoms continued to increase rapidly. On an empty pail being placed before him, and some water poured into it, he became affected with convulsions of the jaws and throat, but afterwards drank a considerable quantity. One of

the earliest symptoms of illness had consisted in an entire change of disposition, so that he now rushed at any one who went near him; and his groom, trusting to the horse knowing him, and thus venturing within his reach, had nearly been bitten. Between six and seven, when I saw him, he was breathing very hard, and seemed much exhausted. His head was pulled down towards his chest by a frequent nodding motion, which appeared to be convulsive; saliva, tinged with blood, flowed copiously from his mouth; his eye was wild, and his whole appearance expressive of great anguish and ferocity. He was placed in a part of the stable separated from the rest by a partition, which was surmounted by an iron railing: he remained for a few minutes without taking any notice, till a groom, who stood by me, called to him, when he turned suddenly round, making a plunge at us, and dashing his head through between the bars with such violence as to bend them, and cover my hand, at which he snapped, with saliva. After this, or any similar exertion, he fell, and remained unable to rise for some time after.

He was killed in the evening; and, on opening the body this morning, no morbid appearance was discovered, except a slight degree of inflammation about the heart.—R. M'L.—*Lond. Med. and Phys. Journ.* May, 1826.

Upon the application of Cold Water in Croup.—In Hufeland's Journal for April 1825, this application is recommended in the form of cold effusion of the back, and cold bathing to the neck itself.

The cold effusion in this disease was first practised by Dr. Harden, of Petersburg, on his own child. In this instance the patient is represented as having been nearly moribund, and recovered after the effusion had been repeated ten times. Professor Aberle, of Salzburg, has also communicated to the Salzburg Journal for 1822 a successful case. The patient, a child, already breathed with extreme difficulty, the danger of suffocation was imminent, the head was thrown back, the shoulders raised, the upper extremities cold, and the pulse intermitting. Although the professor did not see the patient till the fourth day, and, under the circumstances just described, the cure was completed by the fourth application of the effusion. The employment of evaporating lotions to the neck itself is represented as equally

useful. The difficulty of breathing gradually disappeared, a copious expectoration of mucus, mixed with blood and pus, occurring at the same time. The author of the article Croup, in the Dictionnaire de Médecine, has not spoken of this plan from experience, but is unfavourable to it from theory. It certainly is a bold practice; yet, when the disease appears hopeless, we should advise its adoption. “Anceps remedium melius quàm nullum,” is an observation of Celsus, and no cases occur in which it would be more applicable than the last stage of croup. When the usual remedies have been employed unsuccessfully, and a fatal termination appears inevitable, no good ground can exist for not recurring to a plan which may appear to afford a chance, however slight, of recovery. Such are indeed the circumstances, under which, in general, new remedies ought to be tried; and the experience gradually thus obtained will lead, in the securest manner, to the determination of all questions of this kind.—*Lond. Med. Rep. May, 1826.*

Dr. Goelis's Practice in some Diseases of Children.—Dr. H. M. Brosius who attended Dr. Goelis's practice in the diseases of children, has given, in Hufeland's Journal for March, 1825, an account of that physician's treatment and opinions in this department of medicine.

The paper appears to us to contain much that is worthy of notice, and we shall therefore extract some of the more valuable remarks for the information of our readers. They need not be told, we trust, that Dr. Goelis is one of the highest, if not the very highest authority in any thing connected with the disorders of children. Dr. Brosius states, that he laid his journal before Dr. Goelis at his departure from Vienna, and received his full assent to the accuracy of its contents.

“*Inflammatory Diseases.*—According to the experience of Dr. Goelis, two-thirds of all the diseases of children are inflammatory; hence stimulating remedies must be very cautiously resorted to; and in doubtful cases the treatment should be very mild.”

“*Angina Faucium.*—Goelis has a peculiar manner and ability in opening the mouths of children, so as to obtain a complete view of the fauces and pharynx. He places his little finger upon the root of the tongue, in consequence of which an attempt

is made to vomit, and the fauces are thoroughly exposed to view.

“When catarrh is general, the fauces are always examined, that an angina may not be overlooked.”

“*Inflammation of the Medulla Spinalis.*—This disease may be certainly known by the following symptoms:—extended position of the body, with the arms close to the trunk, the elbow joint, somewhat, but the wrists more, movable, so that the hand can be raised to the chest, but not to the mouth. The legs stretched out, lie closed together, and upon any attempt to separate them the child shrieks. He shrieks likewise when the trunk is moved by means of the shoulders; and there is a tendency to diarrhœa. These are the symptoms before the inflammation reaches the brain; when this happens, convulsions ensue, and the diarrhœa ceases. The treatment must be strictly antiphlogistic.”

“*Hooping Cough.*—Goelis praises belladonna in this disease, when it is purely spasmodic, and totally free from inflammatory action. The root he considers superior to the leaf, because the latter is sometimes too powerful. His prescription is the following:

“Radic. belladonnæ gr. j.; opii pur. gr. ii.; sacch. alb. gr. iv.; fiat pulvis in dos. viij. dividend.: one to be taken night and morning; or, according to circumstances, every three hours, till the countenance becomes flushed.

“The tartarised antimonial ointment is generally useless, as well as cruel, in hooping cough.”

“*Abdominal Diseases of Children.*—When the watery diarrhœa of children is preceded by pain in the abdomen, it is probable that a sub-inflammatory action is always present.” This remark of Dr. Goelis is very valuable, though his practice is rather inert; as he recommends diluents alone for this disorder. We generally apply leeches to the abdomen of children in watery colic and diarrhœa with great advantage. The disease is indeed an inflammation of the mucous coat of the intestines.”

“*Infarctus Intestinorum—Atrophia.*—Goelis has remarked a peculiar diagnostic symptom in this disease. It is a singular tuberculated condition of the cheeks of children, situated principally over the cheek bone, as if an almond were under the skin, and very perceptible when the child cries or laughs.

When this symptom is present, the disease is incurable." The author of the paper has added, in a note, that this observation is confirmed by his own experience. We have to regret, however, that we have not a more defined account of the disease meant by *infarctus intestinorum*. The atrophica of medical authors, we know, comprehends many different diseases of the abdomen, having emaciation, very frequently, the only circumstance in common. It is desirable to ascertain the accuracy of Goelis's remark.—*Lond. Med. Rep. May, 1826.*

Neuralgia from a Wound.—Mr. Lisfranc relates the following case:—A man had been struck by a fusil on the sinciput. From this simple contusion of the soft parts, a violent and permanent pain had resulted in the part which had been stricken, with an extreme sensibility of the organ of vision, with other symptoms, both local and general, characteristic of the above complaint. Mr. Lisfranc removed, by two semicircular incisions, that portion of the integuments which was the seat of the pain; and, by causing the wound to suppurate, effected the cure. Mr. Gemelle adds, that, in several analogous cases at the military hospital of Gros Caillou, he succeeded in removing the symptoms by a simple incision down to the bone, which he permitted to suppurate.—*Archives Generales.*

On Bleeding in Pulmonary Inflammation.—In a short Essay on Bleeding in Pulmonary Inflammations, by M. Ducasse, fils, after regretting that some men, highly esteemed in the profession, had renounced general bleeding, and trusted entirely to the local application of leeches, (which M. Ducasse thinks most inefficacious in the treatment of active inflammations,) he goes on to prove, by reasoning, the necessity of general bleeding to accomplish the ends desired in treating inflammation, and which ends, he thinks, cannot be accomplished by leeches. In support of his opinions, he cites some cases where the effects of general bleeding are decided, and he sums up his reflections by proposing four rules.

1st. That, in pulmonary inflammations, the evacuation of blood is the most efficacious remedy.

2d. That this evacuation, to do good, must be abundant and repeated.

3d. That the bleeding by opening veins, is that which should chiefly be used.

4th. That leeches can never take place of venesection, and ought only to be used as secondaries in the treatment of inflammation.

These rules are well known and acted upon in this country; but in France, where this decided mode of treating inflammatory complaints is not by any means generally adopted, they cannot be too often repeated.—*Revue Medicale.*

Annual Report of the National Vaccine Board to the Secretary of State for the Home Department.

To the Right Hon. Robert Peel, Secretary of State, &c. &c.

Sir,—According to the bills of mortality for 1825, the deaths by small-pox amount to 1,299; a much greater number than has been reported for some years past. We had reason to apprehend, from our communications with medical practitioners in various parts of the country, that this disease had prevailed lately with more than its usual malignity; and our suspicions have been confirmed by what has occurred in the metropolis.

From this melancholy statement, it is impossible to avoid the conclusion that, although during the last year 2000 more persons have been vaccinated by our stationary vaccinators, than during any former year, yet the lower orders of society continue to be prejudiced against vaccination, and so careless of the issue, that they still allow small-pox to take its course.

And yet what argument more powerful can be urged in favour of vaccination, than the daily remark which the least observant must make, that, in our churches, our theatres, and in every large assemblage of the people, to see a young person bearing the marks of small-pox is now of extremely rare occurrence?

To what can the freedom from the vestiges of so loathsome a disease be attributed, but to the protecting influence of vaccination? for inoculation has now been disused by all respectable practitioners for some time past.

That a considerable number of persons have had small-pox after having been vaccinated, we are ready to admit; although, of cases of this kind presented to us, a large majority are found, on examination, to be without that test of the operation having been performed successfully and effectually, which all agree to

be necessary to perfect security; yet some, from a peculiarity of constitution, similar to that, perhaps, which admits the small-pox twice, are still susceptible of the variolous infection.

But we do, at the same time, continue to contend, on the fullest evidence, that the subsequent disease is a safe one, and frequently as mild as the chicken-pox; which when it occurred, as it often did after inoculation, occasioned neither alarm nor surprise.

Vaccination, therefore, it will be said, does not afford an absolute and perfect security. We do not present it to the world with that pretension; but we declare that it is the least imperfect of the resources which we possess,—that it has as many advantages over inoculation, (which we desire it should supersede,) as the latter has over the natural small-pox; besides this great and peculiar merit, that it communicates no contagion: for it should be remembered that inoculation, wheresoever it is used, there it establishes immediately a source of infection; and it is notorious that, whatever protection individuals might experience from it, the mortality in London was eventually increased by it, as it was the occasion of keeping up a constant supply of contagious disease.

We continue to receive applications from all quarters of the world for vaccine lymph; and, in answer to our correspondents, never fail to communicate to them such improvements in the management of vaccination, as our experience may from time to time suggest. That the success of this great resource depends very much on the manner in which the process is conducted, is proved by our own observations in this country, and is amply confirmed by the accounts which we receive from the continent; in many parts of which, where the method inculcated by this Board has been adopted, the small-pox may be said to be almost, if not altogether, extirpated.—*Lond. Med. and Phys. Journ. May, 1826.*

Croton Oil Soap.—A soap has been prepared from the combination of the best croton oil with soda, by Mr. Morson, the scientific chemist of Southamptonrow, Russel-square, to whom the profession is indebted for the introduction of the sulphate of quinine, and some other foreign remedies, into British practice. The croton oil soap is very admirably adapted for exhibition in the form of pills, or for combination with pill masses. From the

trials we have made of it, it seems to act mildly, and equally efficaciously as the uncombined oil; its combination with the soda diminishing its irritating and griping properties, without lessening its cathartic operation. The dose of the soap is from one to three grains, two grains being generally a medium dose for the adult subject.—*Lond. Med. Rep. April, 1826.*

PHYSIOLOGY.

High Temperature Resisted by the Human System.—Mr. Chabert, on Saturday last, made the experiment of entering into a hot oven, together with a quantity of meat, sufficient, when cooked, to regale those of his friends who were speedily invited to witness his performance, previous to his publicly exhibiting the same tomorrow, (Wednesday, the seventh instant,) at twelve o'clock. Mr. C. ordered three large faggots of wood, which is the quantity generally used by bakers, to be thrown into the oven, and they being set on fire, twelve more faggots of the same size were subsequently added to them, which being all consumed by three o'clock, Mr. C. entered the oven with a dish of raw meat, and when it was sufficient done he handed it out, took in another and remained therein until the second quantity was also well cooked; he then came out of the oven, and sat down to partake with a respectable assembly of friends, of those viands he had so closely attended during the culinary process. The fences around the oven having been previously taken down, the numerous windows of the houses surrounding White Conduit-house Gardens were thronged with spectators, who as well as those on the spot, (among whom were some professional gentlemen and other amateurs of natural philosophy and chemistry,) testified by their repeated acclamations and loud cheerings, their surprise, admiration, and unequivocal satisfaction at Mr. Chabert's complete triumph over the power of an element so much dreaded by human kind, and so destructive to animal nature.*—*Lond. Journ.*

Digestion.—The French academy of sciences having last year proposed as a subject to determine, by a series of chemical and physiological experiments, what are the phenomena which suc-

* This is nothing but the repetition of an experiment made many years ago by *BLAGDEN, &c.*

ceed one another in the digestive organs during the act of digestion, granted to Messrs. Leuret and Lasseigne the sum of one thousand five hundred francs, in consideration of the numerous and expensive experiments made by them, and the remarkable result obtained. The principal conclusion to be drawn from the researches of these gentlemen, is that digestion, in warm blooded animals, consists in the transformation of the food into organical or chylous molecules, after it had been diluted and divided to infinity by the juices of the intestinal canal. These molecules, of a globulous shape, they consider analogous to monads, or microscopic animalcula of the simplest kind. In support of this supposition they adduce the great quantity of these animalcula which are found in the intestines of frogs, and which they also regard as the produce of digestion. If, on the one hand, it may be objected to them that the stagnant water which these reptiles inhabit contain numbers of these minute beings, which they may probably swallow; it must, on the other hand, be acknowledged, that learned naturalists have expressed a similar opinion, and have considered these animalcula as being rather the elementary molecules of animals, and perhaps of vegetables than real animals. In order to show their sense of the obstacle in the way of the complete solution of the question proposed by the academy, Messrs. Leuret and Lasseigne conclude their memoir as follows. "It is impossible, in the existing state of knowledge, to determine the chemical alterations which food undergoes in the digestive canal, because the means of analysis are insufficient, and because the mixture of food with the juices to the digestive canal, render the results of any experiment exceedingly complicated."

On the influence of the Atmosphere on the Circulation of the Blood.—August 29, 1825, Messrs. Cuvier and Dumeril made a report upon the memoir by Dr. Barry, *concerning the influence of the Atmosphere on the Circulation of the Blood.*—This memoir has for its principal object the determination, by positive experiments, of the power by which the blood is forced and directed from the smallest ramifications into which it has been carried back again to the heart.

Whilst studying the phenomena of venous circulation, Mr. Barry was led to observe, that by the act of inspiration, a void was made in the cavity of the chest tending to dilate it, and

that all liquids in communication with the interior of the thorax should be drawn towards it, as forced by the atmospheric pressure. It must be acknowledged that all the known facts are explained by this physical effect. Of this kind are the swelling of the jugular vein during expiration, and the collapsion during the opposite movement; the cessation of certain hæmorrhages by forced inspiration; the absorption of air by the veins, and the accidents which have followed from the opening of any of the great canals near the heart.

The author does not content himself with quoting facts in support of his opinions, but has endeavoured to corroborate it by direct experiments, of which the following are the principal:—

Having fixed the end of a glass tube, furnished with a stop-cock, upon one of the large veins, as, for example, the jugular of a living animal, and having placed the open end in a coloured liquor, he observed, after opening the stop-cock, that at each strong inspiration of the animal, the liquid was rapidly absorbed; that on expiration it remained stationary, or occasionally slightly receded. The same effects followed whenever the experimenter introduced the tube, and this was done very skillfully, into one of the cavities of the thorax, and even of the pericardium.

In order to render the motion of the liquid absorbed more evident, Mr. Barry made use of spiral tubes, in which the space over which the fluid moved being larger, the ascent was more distinct; and to make this still more evident, he introduced into the coloured liquids some drops of oil or bubbles of air, which facilitated the observation of their motion.

These experiments were executed with the greatest skill, and with every satisfactory precaution requisite to meet the objections which might be made. In all of them the author of this memoir, of which it is our object to relate the results, is satisfied that the motion towards the heart in the large vein is coincident with the instant at which the animal tends to form a vacuum in the breast; that the dark blood traverses the veins only during the act of inspiration; and that the venous movement is always under the influence of atmospheric pressure.

Mr. Barry is so convinced of this atmospheric action upon venous absorption, that he thinks the absorption of poisonous matter may be prevented by the application of a cupping-glass,

or exhausted vessel, upon the recently infected part, or into the interior of which any deleterious substance has been introduced. *Ann. de Chim.* xxx. 192.

The conclusions at which Dr. Barry has arrived, with respect to the blood, are adopted by him with respect to all other fluids similarly circumstanced, and he has embodied some of his opinions upon this subject in a memoir, read before the Academy of Medicine at Paris, on the effects produced by the application of cupping-glasses to poisoned wounds.

Of this memoir no particular details have been given to the public, but the following abstract of the *Report* presented to the Academy by the committee, to which it has been referred for consideration, will give an idea of the estimation in which it is held.

The report observes that the principal statements contained in the memoir of Dr. Barry, may be reduced to the three following, viz. 1st, That the immediate application of a cupping-glass to a poisoned wound, will *prevent* the absorption of the poison, and avert all untoward accidents. 2d, That the application of a cupping-glass to a poisoned wound, even after a part of the poison has been absorbed, and has begun to produce its proper effects upon the system, will *arrest* the progress of these events, and prevent their recurrence so long as it is permitted to remain on the part. 3d, That after the cupping-glass has been applied to a poisoned wound, for a certain time, the poison may be removed from the surface, and all unpleasant consequences averted, by simply washing the part with a little water.

The accuracy of these statements, the report continues, was fully established before the committee, by experiments performed with various poisons on rabbits and dogs. The influence, therefore, of atmospheric pressure on the process of absorption, may now, it is added, be incontestably proved; and the establishment of this fact, for which we are indebted to Dr. Barry, may justly be regarded as a true discovery, notwithstanding some vague ideas previously put forth by others on the subject; and the empirical practice of sucking poisoned wounds, which has been so long known to the profession.

The poisons employed were arsenic, prussic acid, strychnia, the upas tieuté, and, finally, that of the viper, the living animal being made use of. Wounds were made upon the back and thighs

of full grown rabbits, and when the blood had ceased to flow, two or three grains of strychnia, or two or three drops of prussic acid, were introduced into the wounds, and after intervals of three, five and ten minutes, a cupping-glass was applied, which was renewed as often as it fell off. No symptoms of poisoning occurred in these cases, but if the precaution was neglected, death ensued.

A cupping-glass applied to a wound into which some strychnia had been put, prevented the effects of this substance from manifesting themselves, and also suspended them when beginning to be apparent. Eight grains of white arsenic were introduced into a wound in the thigh of a dog; three quarters of an hour after, a cupping-glass was applied to the wound, and kept on for four hours, and the animal suffered no inconvenience. Another dog similarly poisoned, and left unassisted, died at the end of fifteen hours.

Six drops of prussic acid were poured into a little wound, made in the thigh of a rabbit; the cupping-glass was applied for twelve minutes, and the animal showed no signs of having been poisoned; but when it was taken away, convulsions came on so suddenly that it was thought to be dead, but a fresh application of the cupping-glass restored it to its former state of tranquillity; the same effects ensued upon removing it again, and it was only half an hour after the introduction of the poison, that it could be removed with impunity. Another rabbit, treated with the same quantity of acid, where no cupping-glass was used, died in two minutes.—*Medical Repository.*

Pulmonary Absorption.—The important relations of this subject lead us to notice the researches made by Mr. Piollet, a French military surgeon, a report of which has been made to the Parisian Academy. (*Arch. Gén.*) This gentleman has, it appears, made a series of experiments to elucidate the subject, of a date more recent than those made by Mr. Mayer, which were noticed in our number for May, 1825. His first attention was to the question of the penetration of water into the air-passages in cases of submersion, on which there has so long been a difference of opinion. The fluid selected for the experiments by Mr. Piollet was oil, as he considered that although the use of coloured fluids enabled the experimenter to ascertain the fact of their penetration into the lungs, it did not give him any power of appreciating

the quantity so admitted. When animals were drowned in oil—dogs, cats, or rabbits being the subjects of the experiment—he always found from two to four ounces of that fluid in the air-passages; and there was a constant relation between this quantity and the capacity of the respiratory apparatus. The reporters on these trials of Mr. Piollet think, that the disagreement subsisting on this subject depends on the circumstance of water being found or not found in the lungs of drowned persons, according as such unfortunate individuals have or have not made attempts to breathe after falling into the water. With respect to the obstacle created by this penetration of fluid towards the recovery of drowned persons, Mr. Piollet has satisfied himself by some further experiments: for instance, he strangled six dogs in the same manner, having previously injected into the lungs of three of them four ounces of water; and found that the dogs, into the lungs of which such injection was made, ceased to move sooner than the others, and could not afterwards be brought to life, whilst all those of which the lungs were not injected were revived. Directing his inquiries to the manner in which the water which has penetrated into the lungs of drowned persons is removed when they are resuscitated, Mr. Piollet thinks he has proved it to be by absorption. Having submersed several animals in a solution of prussiate of potash, he was able to ascertain the presence of that salt in the pulmonary veins, in the left cavities of the heart, and in the whole arterial system; and for the purpose of discovering the time required for conveying the fluid employed into the arterial and venous blood, he laid bare the crural artery and jugular vein of a dog, into the lungs of which he had injected four ounces of a solution of prussiate of potash; and withdrawing a little blood every minute from the artery and from the veins he found traces of the salt to appear at the fourth minute in the arterial, and at the seventh minute in the venous blood. Having killed and opened the animal ten minutes after making the injection, he found traces of the salt in the right cavities of the heart, but less than in the left, and also in the bronchial glands, in the kidneys, and even in the urine. In the last place, Mr. Piollet made some experiments tending to prove that pulmonary absorption applies to gases, vapours, and miasmata, as well as to liquids: he confined his head in air charged with turpentine, alcohol, and putrid miasmata, the rest of his body being in a healthy atmosphere, and found, after some minutes, that in the first case his urine had acquired

the odour of violets; in the second he experienced all the phenomena of intoxication; and in the third, the intestinal gases and fæces exhaled a decidedly cadaverous odour.—*Lond. Med. Rep.* April, 1826.

Experiments on the Secretion of Bile.—In order to determine whether the bile is secreted from arterial branches or from those of the *venæ portæ*, it is necessary to tie, either simultaneously or in succession, the excretory ducts, and the vessels which carry both kinds of blood to the liver. The ligature of these vessels, which has been considered impossible, may be easily performed upon rabbits; but, as their bile is but lightly coloured; the results are not very conclusive. In pigeons, on the contrary, there is some difficulty, on account of the hepatic artery; but, as positive consequences may be drawn from them, the experiments here related were all performed upon these birds.

1st. *Ligature of the excretory vessels.*—The bile being in the course of separation, and not being able to be evacuated, the liver swells, and becomes filled with globules of a bright green, which colour becomes spread over the whole surface of the liver and neighbouring parts: the green tint is more distinct in proportion to the age of the animal, and the length of time he outlives the operation. Ten or twenty hours after the ligature has been applied, the animal evacuates, by the anus, matter absolutely green, of the colour of the bile in the gorged liver, which colour of the excrements goes on increasing in intensity until the death of the animal; and it was found that the green matter by which it is produced only exists in the cloaca. This fact, united to the observations of Prevost and Dumas, who have succeeded in increasing the biliary secretion by interrupting that of the urine, demonstrates that the kidney and liver assist each other, more or less perfectly, respecting the excretion of their respective products, when it cannot take place by the natural channel.

2d. *Ligature of the excretory ducts and the hepatic artery.*—At the end of twelve hours, the surface of the liver receives a colour which also tinges the neighbouring parts; the canals become filled, and announce the presence of bile. Twenty hours after the ligature, the liver contains a great quantity of green granulations, more numerous on the left than on the right side; the cloaca also contains green matter, as in the last instance. If

the life of the animal is prolonged for forty hours, the green colour of the liver and of the excrements becomes deeper. These experiments appear to prove that the separation of bile follows, and for a long time, after the liver has been deprived of arterial blood.

3d. *Ligature of the hepatic artery alone.*—In this case the liver does not become gorged, because the excretory ducts are free. After death, it is found that the secretion of bile has continued, since it is found in the ducts; and also the matters contained in the intestines present their usual bilious colour.

4th. *Ligature of the roots of the vena portæ, and of the excretory ducts.*—The liver is then directly deprived of its colour, and has only a tint of pale rose-colour, analogous to that of the lungs of the same birds; no trace of bile is to be met with; the intestine contains a grey or whitish pulp; the cloaca is full of excrement, without the least trace or mixture of green; and, notwithstanding which, many pigeons have lived in this state for thirty-six hours. Only tying the principal trunk of the vena portæ, to permit the gastro-hepatic veins to enter, the right lobe which receives them is, at the end of fourteen hours, in its natural state; whilst the left lobe is without colour, and presents on its outside merely a few traces of bile.

From these four series of experiments, the results of which perfectly agree with each other, it may be concluded—1st, That the ligature of the hepatic artery does not impede the secretion of bile. 2d, That the presence of bile becomes manifest when the excretory ducts are tied. 3d, That the blood of the vena portæ is that which furnishes the elements of bile, since by tying those vessels, the secretion is arrested.—*Annali Universali*.

Animal Magnetism.—This seems again about to occupy the attention of the French medical school. At a late meeting of the Academie Royale de Medecine, M. Husson, in his own name and that of several other physicians, read a Report on the question, whether the section should again consider the subject of animal magnetism? The commission concludes affirmatively, —1st. That the judgment given in 1784, by the members of the Academy of Sciences, and of the Royal Society of Medicine, charged with the examination of the subject of animal magnetism, ought not to interdict a fresh examination; since, in matters of

science, a first judgment has been too often found defective, and because the searches made by them had not been made with all the care that the habit of experimenting has now introduced in the exposition of facts.

2d. That the magnetism on which judgment was pronounced in 1784, differs entirely, both in theory and practice, and its phenomena, from that which is now to be considered.

3d. That magnetism, having now fallen into the hands of learned men and physicians, and being a special subject of study in most of the colleges of medicine in other countries of Europe; it is for the honour of French physicians not to be behind those of other nations. In fact, that, in considering magnetism as a secret remedy, it is not only an amusement, but a duty of the Academy to take notice of it.

The discussion on this interesting subject has been postponed for some future meeting.

M. I. Amadee Dupau has just published a work relating to this subject, "*Lettres Physiologiques et Morales sur le Magnetisme Animal*," in which there is much interesting matter. He considers the moral influence of the magnetism to be very great over his patients, and that much danger is to be apprehended, both to the public morals and the safety of private families.

One of the advocates for the system, Mr. Rostan, speaking of the influence acquired by the operator over the patient, says, "that she would follow him as a dog follows his master." If this be true, it is high time for fathers, husbands, and brothers, to look about them.—*Lond. Med. and Phys. Journ. May, 1826.*

Uterus wanting.—Mr. Renaudin presented to the Academy of Medicine the genital organs of a woman, in whom the uterus was wanting. This woman, fifty-two years of age, died of a cancerous affection of the stomach; she was of very small size, not more than three and a half feet in height; her intellects imperfect; and she had never menstruated, neither had her breasts ever been developed. The parts of generation externally were well formed; the hymen existed in part; and a finger, introduced into the vagina, encountered, instead of the neck of the uterus, a small tubercle, possessed of little sensibility. Between the bladder and rectum, instead of a uterus, was a kind of firm cord,

about the size of a quill, communicating at one extremity with the vagina, and also with the fallopian tubes. These tubes, very much enlarged at the point where they opened into this canal, formed there a kind of sac. Some traces of ovaria were faintly preceptible. On slitting open the vagina and this little canal, the first was found to be properly formed, and the last, which was only an inch in length, was evidently, both from its consistence and organization, the neck of the uterus imperfectly formed; the body and fundus of that organ being altogether wanting.—*Archives Generales.*

Bag of the Pericardium Deficient.—Recent Case.—An interesting and well-marked example of this singular *lusus* was some time since, it appears, met with in an adult subject, at the Ecole de Médecine in Paris.

Fortunately for the interests of science, this specimen fell into the hands of persons well qualified to appreciate its value; and the parts therefore, were not only carefully examined and preserved, but models and drawings were also prepared from them in their natural situation. From these drawings, plates, we find, have lately been engraved, which will shortly, it is expected, be given to the public, accompanied by a full and accurate description from the pen of Mr. Breschet, the distinguished anatomist, under whose care the whole of the proceedings relative to the case have, we believe, been conducted.

This publication will, we trust, supply a deficiency which has long been felt and regretted by anatomists; for the accounts hitherto given of the state of the heart and surrounding organs, in cases where the pericardium was found deficient, are, as every one knows, extremely vague and unsatisfactory, with the exception perhaps of that left by the late Dr. Baillie,* which, however, is defective in this respect, that there are no plates or drawings to illustrate the text.—*Lond. Med. Rep. May, 1826.*

CHEMISTRY.

Test of the Presence of Organic Exhalations in the Atmosphere.—Il Signor Bazio having noticed the powerful effect ex-

* Vide 'Works,' by Wardrop, vol. i. for an account of a case of this nature, met with by Dr. Baillie himself.

erted by anhydrous sulphuric acid in vapour over organic exhalations in the air, and the consequent production of black carbonaceous spots, has proposed the use of it for this purpose, and has dignified a little glass instrument, in which a portion of air is exposed to the vapours of the acid, by the name of the *diaftroscopio*. He states that he has experimented frequently with the air of his laboratory, but never found it free from these kinds of exhalations.

By putting different substances into the air operated upon—as, for instance, putrid matter, alcohol, essential oils, camphor, ether, odorous resins, &c.—a saturated atmosphere was procured, and results, in some degree comparative, obtained. The vapour of alcohol gave the most carbonaceous indication, and after it camphor. Ether gave no indications above that of the air containing it.—*Giornale di Fisica*.

Preservation of Lemon or Lime Juice.—Lemon or lime juice, according to the experiments of captain Bagnold, may be preserved without the addition of rum, spirit, or any other substance, by the process well known and practised for the preserving of green gooseberries and other fruits for domestic purposes. Lime juice was expressed from the fruit in Jamaica, in September 1823, strained, put into quart bottles, and carefully corked; these being put into a pan of cold water, were gradually raised to the boiling point; they were retained at that point for half an hour, and then allowed to cool. A bottle opened in April, 1824, was found to contain the juice in the state of a whitish turbid liquor, with the acidity and much of the flavour of the lime, nor did it appear to have undergone any alteration. The same juice, again bottled and heated, was set aside till March, 1825, when, upon examination, it was found in good condition, retaining much of the flavour of the recent juice.—*Trans. Soc. Arts*.

MISCELLANEOUS.

Laws of Mortality in France.—Mr. Benoiston, of Chateaufort, has drawn up a memoir on the changes which the laws of mortality appear to have undergone since 1755; containing, among curious and interesting observations, the following:—

Of one hundred infants, fifty were formerly found to die in the course of the first two years of life: the number of deaths is

now reduced to 38.3, a difference which is in a great measure ascribed to vaccination.

Of one hundred children, 55.5 formerly died before ten years of age: at present the number is 47.7.

Of one hundred male children, 21.5 only reached to the age of fifty: at present the number attaining that age is 32.5.

It was formerly ascertained, that the rate of annual mortality was one in thirty: it is now one in thirty-nine. The births were formerly in the proportion of one to twenty-five: they are now one to thirty-one. Marriages were as one to one hundred and eleven: they are now as one to one hundred and thirty-five. The fecundity of marriages was calculated as presenting an average of four children to every married couple; and in this respect no change is found to have taken place.

Thus, it seems, the marriages have *decreased* in number; and as a consequence, although it cannot be called a direct one, the *births* are fewer. But the term of life seems to have been prolonged, and thus the population has become greater. If these calculations be correct, they afford a sufficient refutation of theories, of which the tendency has been to discourage early marriages, as if the petty political economy of man was of more authority than the plain ordinances of the Almighty. This is of course not the place to inquire into the causes of the diminished number of marriages in France, or into the evils which must accrue to public morals from such a circumstance.—*Lond. Med. Rep. May, 1826.*

Lunatic Asylum.—A return of all the houses licensed for the reception of lunatics in Great Britain, the names of the proprietors and the number of patients confined in each, has been laid before the House of Commons, from which it appears that seven thousand nine hundred and four persons have been entered upon the registers as lunatics from 1815 to 1824. In some large towns the number of women exceeds that of men, in the proportion of seven to six, in others of six to five; and from the return made this year by the physicians of Bethlem Hospital to the Court of Governors, it appears that the number of women in that establishment exceeds that of men by nearly one-half. The proportion of men to women, however, in the gross amount, is as four to three.

AMERICAN INTELLIGENCE.

Observations on a case of Ruptured Tendo-Achillis, and the method adopted for its cure. By W. E. HORNER, M. D. Adjunct Professor of Anatomy in the University of Pennsylvania.

Though disinclined on common occasions, to attempt the establishment of general inferences from partial experience, I am induced to lay aside this salutary reserve, from the subject of the present communication not being one of those, where a few years delay promises to a single individual much gain from the stores of his own experience. Moreover, as the accident itself is not a very common one in this country, and the precise condition of the patient alluded to is much less so, I may perhaps be excused for communicating an insufficiently tested plan of practice, in consequence of a desire to incite others to a similar course, as occasion offers, in case of the usual means failing; because, by thus collecting experience, we shall sooner ascertain the positive value of the hint thus thrown out.

James Lang, aged fifty-four, of temperate habits and spare form; while walking at night, made some miscalculation on the dimensions of a trench washed by the rain, which he was passing; and instead of clearing it, as he intended, stepped very unexpectedly four feet downwards, to its bottom. The strain thus suddenly thrown upon the advanced leg, caused an entire rupture of its tendo-achillis, about two inches above the insertion into the os calcis.

He came under my special notice as a patient at the Alms-house in the surgical ward, about five weeks after the accident. At that time the calf of his leg was flattened; the extremities of the ruptured tendon, in the rectangular position of the foot were an inch and a half apart, and could be moved easily from side to side; the depression between them was very obvious; and on flexing the foot there was no appearance of the tense cord, commonly made by the tendo-achillis when entire.

I know not to what extent or with what degree of exactness, the manner of treatment proposed by J. L. Petit, and since his day very generally adopted under various modifications of the apparatus, was resorted to previously to my seeing the patient. It is sufficient for my purpose to state, that the application of

the principle of Petit was directed to be continued, without much expectation of its being useful, after so long an interval since the original accident. Another week thus elapsed. During this period, having had time to reflect on the very inconsiderable and remote advantage which I had obtained from similar curative measures the last summer; in a case where the patient had postponed applying to a surgeon for the first five or six weeks after a like accident; I determined to do something in this instance, which I thought would both perfect and expedite the cure.

As in health tendons do not admit any sensible current of red blood into their vessels, but do so on being inflamed; we can easily understand how, if the first irritation from their rupture be permitted to pass without the fractured extremities being kept together; on the ordinary circulation of the part being subsequently reestablished, it is insufficient for their restoration. The gap continues ever afterwards between the ruptured extremities, and is only imperfectly filled on the lapse of a long time, by a ligamento-cellular substance, which forms a connecting link between the origin of the muscle and its insertion. The muscle itself is unable to produce its usual extent of motion, because it is left in a shortened state.

The indication, therefore, is to rouse again the circulation of the part by some permanent stimulus, so as to cause its vessels to secrete a matter suited to its restoration; and while this is going on, to keep the ruptured extremities as near together as can be done, so as to favour the uniting process. It is very well known that Dr. Physick several years ago, (1802,) suggested, and happily executed, by the introduction of a seton, this manner of treatment, on artificial joints from fractured bone; since then, the testimony of many surgeons in Europe and America, and his own additional experience, have established beyond doubt the value of his mode of cure. The case in question appeared to me a proper one for trying a similar plan on a ruptured tendon; accordingly, six weeks after the original accident in Lang, I passed a sharp, broad seton kneedle, armed with a piece of thin ribbon an inch wide, between the broken extremities of the tendon. I became satisfied of the kneedle having entered the sheath of the tendon, by the escape of four or five drops of synovial fluid. The pain of the operation was trifling, and the parts did not inflame much at first; but the inflammation having shown itself in two or three days, continued to augment gra-

dually for four weeks. About the latter period, the pain was severe and sufficiently trying to the patient; he wished the removal of the seton, but I prevailed on him to bear it a little longer. At length, after it had been worn forty-five days, had produced suppuration, and seemed to be causing an ulceration for its own discharge, I withdrew it. In three or four days after the introduction of the seton, I had a bandage applied around the calf of the leg, and a thick pasteboard splint placed in front of the ankle joint, so as to keep the foot permanently extended, and consequently the ends of the tendon as near as possible to one another. The patient was confined to his bed.

I have now, (July 31st, 1826,) the happiness to state, that nearly five weeks have passed since the removal of the seton, the sore caused by it has healed, the gap between the ends of the tendon no longer exists; when the foot is flexed, the tendon springs out like a stretched cord, and may be felt continuous from the heel to the gastrocnemius muscle, and it also imparts to the foot the contraction of the latter; in short, the cure seems to be accomplished. Fearful, however, of the strength of such newly-formed tendon, I have not permitted the patient as yet to try its firmness fully. As may be supposed, the gastrocnemius has not regained its strength or original volume, a circumstance sufficiently common, when muscles have from any cause been thrown out of action for a long time. Since I have announced the cure of Lang, the resident students of the house, who, by their intelligence and professional acumen are entirely competent to decide properly on a case of the kind, have also agreed with me that the tendon is reunited.

As my object is to communicate the fact of an unusual, but successful mode of treating a ruptured tendon, and not to write a paper, I have purposely omitted any discussion on the comparative value of the suture of Guy de Chauliac or Ambrose Paré, the bandage of Petit, the slipper of Monro, and the front splint on the leg, of Schneider. It however may be worthy of remark, that it is very possible to act correctly on wrong principles; that the suture of Paré, though not intended as an irritant or seton, acted as such, and thereby increased the inflammation of the ruptured tendon to a restorative point: whereas the fear of too much inflammation among modern surgeons, and the leeching, low diet, and purging which they enjoin; diminish the very action on which the speedy and perfect cure depends.

Observations on Irregularities of Distribution in the Arterial System. By E. S. GEDDINGS, M. D. of Charleston, S. C. in a letter to JOHN D. GODMAN, M. D.

In the last number of the Philadelphia Journal, I met with your observations on "irregularity of structure," in which you describe an unusual origin and distribution of the inferior thyroid artery. I fully concur with you in the utility of such observations, and their great importance to the anatomist, the surgeon, and physiologist, and will now refer you to some similar instances of irregularity which have been heretofore observed.

The anatomists of the last century state several instances of these anomalies, and they have not been overlooked or disregarded by their successors. The English and continental writers of the present day, furnish an abundant detail of similar cases. An example of the origin of the inferior thyroid artery from the common carotid was observed by Nicolai,* and several instances are recorded by Haller,† Neubauer,‡ Böhmer,§ Huber,|| Meckel, Sen.¶ Sæmmering,** Tiedeman,†† and J. F. Meckel.‡‡ Tiedeman states that he has seen several instances, both in adults and children recently born, in which the inferior thyroid originated from the trunk of the common carotid. In one of these "*viriquinquagenarii arteriam thyroideam imam ex anonyma, arteriamque thyroideam parvam dextri lateris e carotide commune enascentur vidi*," and Sæmmering, besides quoting Haller for an instance of this anomaly, observes "*talora una seconda tiroidea inferiore nasce dall' arteria inominata, o dalla carotide destra commune, o dalla succlavia, o dall' arco dall' aorta, &c.*"§§

* *De directione vasorum*, § 7. not. g. p. 28.

† *Element. Physiol.* t. 3. p. 403.

‡ *Epistol ad Hallerum*, vol. 2, § 7.

§ *Dissert. de Confluxentium Cavarum in dextrum cordis atrio*; Respon. Nic. Theuni.

|| *Epistol ad Hallerum*. He describes two instances, one on the right and one on the left side.

¶ *Idem*, vol. 2, p. 258.

** *Fabrica del Corpo Umano*, vol. 4. p. 132. &c.

†† *Tabula Arteriarum*, p. 59.

‡‡ *Tabula Anat. Path. Fasc. 2. Tab. 10, fig. 3, et Manuel d'Anatomie*, vol. 2. p. 374.

§§ *Fabrica del Corpo Umano*, vol. 4, p. 132.

from which it would appear that besides the anomaly which you have described, he has witnessed another, formed by the origin of a second inferior thyroid from the common carotid. Independent of the anomaly delineated in his *Pathological Anatomy*, Meckel observes when speaking of the thyroid artery, “*Independamment du rameau qui vient d’être décrit, on en trouve quelquefois un particulier qui provient, tantot de la carotide primitive, ou du tronc innominata, tantot de la crosse de l’aorte elle meme, ou de la souclavière, par un tronc commun avec celui du côté opposé.*”^{*} Cases of this anomaly have also been observed by Vink, Van de Bloed, and Helvetius, who have recorded several varieties.

Having referred to several examples of an anomalous origin and distribution of the inferior thyroid artery, I now beg leave to call your attention to some similar anomalies of the superior thyroid, or laryngeal artery, which will also afford other examples of the origin of branches from the common carotid. These anomalies are equally, or even more frequent than those of the preceding, and have, like them, been pointed out by several distinguished anatomists of the present day. For proof it will be sufficient to refer to the works of Barclay,[†] Burns,[‡] Boyer,[§] J. F. Meckel,^{||} &c. In an example witnessed by Boyer, the superior thyroid originated from the primitive carotid, in common with the lingual artery:—and Sæmmering[¶] states, that in some instances the superior thyroid is double, and has a branch coming from the common carotid, which is distributed to the pharynx above the os hyoides. He also affirms, that occasionally the common carotid gives off the internal mammary of the right side, and sends a branch to the thymus gland.

It would be easy to adduce a great number of varieties of these arteries, but enough has been said to prove their frequent occurrence, and the importance of attending to them. This im-

^{*} Manuel d’Anatomie Traduit d’Allemand par Jourdan et Breschet, vol. 2, p. 374.

[†] Barclay on the Arteries, page 13.

[‡] Burns, p. 329.

[§] Boyer Traité d’Anatomie.

^{||} J. F. Meckel, Path. Anat. B. 2. Alth. 1. p. 112.

[¶] Sæmmering Fabrica del Corpo Umano, vol. iv. p. 95.

Neubauer, § 36 et 37.

portance indeed cannot be too forcibly impressed upon the surgeon. At a time like the present, when the principles of surgery are guided by the lights of anatomy, when the late improvements in this departments have inspired us with a boldness amounting almost to temerity, and when we do not hesitate to attack parts with the "knife in hand," which the limited views and prudential measures of our ancestors taught us to believe could not be submitted to the influence of our instruments; it behoves us to make ourselves acquainted with the anomalies, as well as the natural arrangement of the different parts of the animal economy.

From what you have stated in your Anatomical Investigations relative to the muscle of the thyroid gland, I should be almost tempted to conclude that it was considered rather as an anomaly, than the natural condition of the parts. It has, indeed, often been to me, a matter of surprise that this muscle should so rarely present itself in Philadelphia, as the declarations of some of the anatomists of that place would seem to indicate, more especially, as in my own dissections, both on the continent, and in Charleston, I have almost always found it more or less marked. Dr. Horner, in his Practical Anatomy, appears to refer the discovery of this muscle to Scemmering and Loder. It was, however, described long before the time of either of these writers, and has been mentioned as generally present by Sabatier and most of the French and German anatomists of the present day, as a reference to their writings will prove.

For a great number of anomalies of the arch of the aorta, and the branches to which it gives origin, I beg leave to refer you to the splendid tables of Tiedeman, whose delineations are perfect copies of nature. My restricted limits will not allow me to advance farther into this unexplored, but fruitful field of inquiry. It presents many points, claiming our most serious investigation, which, if properly attended to, would tend in no small degree to the advancement of surgical skill, and the amelioration of the afflictions of mankind.

Charleston, 15th July, 1826.

[We return Dr. Geddings our thanks for the above interesting communication, which we hail as the precursor of others, from the same candid and competent observer. We obtained a short

time subsequent to the appearance of our last number, and long previous to the date of Dr. Geddings's letter, a copy of Meckel's Anatomy, and had prepared a notice of the authorities cited by the learned German anatomist as having observed irregularities similar to those mentioned in this journal. We withdraw the article prepared for the purpose with much pleasure and substitute Dr. Geddings's letter; hoping that his example may induce others to contribute the results of their researches and experience for the general good. Such contributors will always be sure of a welcome reception, and their papers be immediately laid before the profession through the pages of this journal.

It is sufficient to remark in relation to the muscle of the thyroid gland, that it was only in consequence of its having been mentioned as of very rare and singular occurrence, that we were first induced to devote to it any especial attention. After we had repeatedly demonstrated its existence, (even as often as four times in one week,) we heard that its occasional presence was disputed by some who ought to have been better informed. This circumstance led us to record every instance subsequently observed, which was very nearly in half the subjects examined.

MORTALITY

IN SEVERAL OF THE PRINCIPAL CITIES OF THE UNITED STATES, FOR THE YEAR 1825.

The following bills of mortality have been taken from Poulson's American Daily Advertiser, (for which they were expressly arranged,) with some alterations.

STATEMENT OF DEATHS IN THE CITY OF BOSTON, For the year 1825,

SPECIFYING THE SEXES, AGES, AND DISEASES.

Deaths in each Month.	Males.	Females.	Total.	AGES.	
January, . . .	51	48	99	Under 1 Year,	322
February, . . .	53	66	119	From 1 to 2	170
March, . . .	46	37	83	2 to 5	104
April, . . .	60	51	111	5 to 10	46
May, . . .	63	58	121	10 to 20	54
June, . . .	53	48	101	20 to 30	136
July, . . .	83	87	170	30 to 40	155
August, . . .	74	78	152	40 to 50	117
September, . . .	79	66	145	50 to 60	81
October, . . .	73	50	123	60 to 70	51
November, . . .	48	58	106	70 to 80	55
December, . . .	60	60	120	80 to 90	26
				90 to 100	8
Totals, . . .	743	707	1450	Unknown,	125
				Total, . . .	1450

The above mentioned Deaths were caused by the following Diseases and Casualties, viz :

Fever, Typhus . . .	54	Brought over, . . .	374
— Synocha . . .	12	Enteritis . . .	15
— Intermittent . . .	1	Cystitis . . .	1
— Yellow . . .	1	Hepatitis . . .	16
Asthma . . .	2	Icterus . . .	9
Pleuritis . . .	6	Peritonitis Chronica . . .	3
Pneumonia . . .	67	Dysentery . . .	56
Phthisis Pulmonalis . . .	220	Colica Biliosa . . .	4
Influenza . . .	7	Diarrhœa . . .	4
Phrenitis . . .	3	Cholera Morbus . . .	11
Diaphragmitis . . .	1	Dyspepsia . . .	7
Carried over, . . .	374	Carried over, . . .	500

Brought over, . . .	500	Brought over, . . .	723
Obstipatio . . .	3	Still Born . . .	89
Intemperance . . .	23	Infantile diseases . . .	44
Delirium Tremens . . .	7	Cholera Infantum . . .	13
Vesania . . .	10	Dentitio . . .	15
Ascites and Anasarca . . .	28	Aphtha . . .	40
Hydrocephalus . . .	38	Pertussis . . .	27
Hydrothorax . . .	3	Rubeola . . .	77
Rheumatismus . . .	6	Scarlatina . . .	1
Arthritis . . .	1	Cynanche Maligna . . .	6
Erysipelas . . .	1	— Trachealis . . .	24
Scrofula . . .	4	— Tonsillaris . . .	3
Lepa . . .	1	Vermes . . .	3
Variola . . .	1	Accidental . . .	11
Heart, diseases of . . .	5	Drowned . . .	21
Carditis . . .	2	Murder . . .	1
Palpitatio . . .	1	Suicide . . .	4
Old Age . . .	38	Suffocation . . .	1
Marasmus . . .	2	Poison . . .	1
Sphacelus . . .	8	Frozen . . .	1
Abscessus . . .	2	Cold water, drinking of . . .	3
Tumour . . .	1	Heat . . .	3
White swelling . . .	1	Sudden . . .	35
Carcinoma . . .	7	Bursting blood vessels . . .	2
Burns . . .	5	Lethargus . . .	1
Sciatica . . .	1	Spasmi . . .	48
Calculus . . .	2	Apoplexia . . .	12
Syphilis . . .	3	Paralysis . . .	14
Hernia . . .	2	Unknown . . .	227
Puerperal diseases . . .	17		
Carried over, . . .	723	Total, . . .	1450

By order of the Mayor and Aldermen,
 SAMUEL H. HEWES,
 Superintendent of Burial Grounds.

STATEMENT OF DEATHS IN THE TOWN OF SALEM,
For the year 1825,

SPECIFYING THE SEXES, AGES, AND DISEASES.

Deaths in each Month.	Males.	Females.	Total.	AGES.	
January, . . .	10	12	22	Under 1 year,	54
February, . . .	8	20	28	From 1 to 2	35
March, . . .	9	8	17	2 to 5	15
April, . . .	7	5	12	5 to 10	4
May, . . .	7	7	14	10 to 20	16
June, . . .	11	6	17	20 to 30	30
July, . . .	17	17	34	30 to 40	28
August, . . .	19	19	38	40 to 50	27
September, . . .	10	19	29	50 to 60	27
October, . . .	13	11	24	60 to 70	26
November, . . .	14	10	24	70 to 80	22
December, . . .	13	8	21	80 to 90	11
				90 to 100	5
Totals, . . .	138	142	280	Total, . . .	280

The above mentioned Deaths were caused by the following Diseases and Casualties, viz :

Apoplexy . . .	4	Brought over, . . .	86
Aphthæ Infantum . . .	3	Delirium Tremens . . .	3
Aphthæ . . .	3	Dropsy . . .	4
Abortion . . .	2	Dysentery . . .	11
— after Dysentery . . .	1	Diarrhœa . . .	1
Accident . . .	2	Dyspepsia . . .	1
Atrophy . . .	2	Disease of Rectum . . .	1
Burns . . .	2	— Liver . . .	1
Cancer . . .	1	Epilepsy . . .	1
Canker . . .	1	Enteritis . . .	3
Cholic, Bilious . . .	1	Fever . . .	9
Congestion in the Brain . . .	1	— Typhus . . .	1
Consumption . . .	41	Hydrorachitis . . .	1
Convulsions . . .	4	Hydrocephalus . . .	13
Chronic Hepatitis . . .	1	— Acutus . . .	5
— Diarrhœa . . .	2	— Internus . . .	2
Croup . . .	5	Hydrothorax . . .	3
Cholera Infantum . . .	2	Hydrops Uteri . . .	1
— Morbus . . .	1	Heat . . .	1
— Morbus and Enteritis . . .	1	Hæmorrhagia Atonica . . .	1
Compression of the Brain . . .	1	Intemperance . . .	6
Drowned . . .	4	Jaundice . . .	1
Dentition . . .	1	Marasmus . . .	9
Carried over, . . .	86	Carried over, . . .	165

Brought over, . . .	165	Brought over, . . .	219
Medullary Sarcoma . . .	1	Phthisis Pulmonalis . . .	20
Measles	2	Sudden Death	8
Old Age	22	Suicide	3
Paralysis	4	St. Vitus' Dance	1
Peripneumonia	5	Secondary Syphilis	1
— Notha	11	Scalded	2
Puerperal Insanity	1	Still Born	1
Pneumonia	3	Scirrhus Pylorus	1
— After Measles	1	Tabes	1
— Typhoides	1	Typhus Gravior	1
Palsy	2	Uncertain	22
Pertussis	1		
		Total,	280
Carried over,	219		

By order of the Board of Health,

JOHN C. VERY, Secretary.

STATEMENT OF DEATHS IN THE CITY AND COUNTY OF
NEW YORK,

For the year 1825,

SPECIFYING THE SEXES, AGES, AND DISEASES.

Deaths in each Month.	Adults.	Children.	Total.	AGES.	
January,	196	121	317	Under 1 year,	1109
February,	287	153	440	From 1 to 2	386
March,	228	134	362	2 to 5	300
April,	194	111	305	5 to 10	137
May,	262	143	405	10 to 20	181
June,	245	174	419	20 to 30	653
July,	435	298	733	30 to 40	758
August,	233	279	512	40 to 50	641
September,	188	219	407	50 to 60	357
October,	206	160	366	60 to 70	226
November,	219	157	376	70 to 80	161
December,	208	168	376	80 to 90	88
				90 to 100	14
Totals,	2901	2117	5018	100 to 110	7
				Total,	5018

The above mentioned Deaths were caused by the following Diseases and Casualties, viz:

Abscess	12	Brought over,	2801
Aneurism	4	Frozen	3
Apoplexy	147	Gout	2
Asphyxia	4	Gravel	3
Asthma	12	Hæmorrhage	16
Burned or Scalded	30	Hæmoptysis	9
Carbuncle	3	Herpes	2
Cancer	13	Hives, or Croup	133
Caries	1	Hysteria	1
Casualties	53	Jaundice	15
Catarrh	1	Infanticide	3
Childbed	30	Inflammation of the Bladder	3
Chicken Pox	1	—— Bowels	104
Cholera Morbus	26	—— Brain	107
Cholic	6	—— Chest	203
Compression of the Brain	3	—— Liver	56
Consumption	843	—— Stomach	13
Convulsions	293	Influenza	32
Contusion	4	Insanity	26
Cramp in the Stomach	9	Intemperance	84
Diabetes	1	Killed, or Murdered	3
Diarrhoea	61	Leprosy	1
Drinking cold water	77	Locked Jaw	14
Dropsy	110	Lumbar Abscess	2
—— in the Chest	37	Manslaughter	1
—— in the Head	196	Marasmus	58
Drowned	56	Measles	53
Dysentery	138	Mortification	21
Dyspepsia	5	Nervous Disease	9
Epilepsy	6	Old Age	203
Erysipelas	16	Palsy	62
Fever	120	Peripneumony	43
—— Bilious	10	Pleurisy	42
—— Bilious Remittent	14	Pneumonia Typhoides	7
—— Inflammatory	3	Quinsy	8
—— Intermittent	10	Rheumatism	14
—— Puerperal	5	Rickets	1
—— Putrid	1	Rupture	3
—— Remittent	45	St. Anthony's Fire	4
—— Scarlet	10	Scirrhus of the Liver	1
—— Typhus	227	Scrofula, or King's Evil	14
Flux, Infantile	151	Scurvy	1
Fracture	7	Small Pox	40
Carried over,	2801	Carried over,	4221

Brought over, . . .	4221	Brought over, . . .	4598
Sore Throat . . .	33	Tabes Mesenterica . . .	143
Spasms . . .	5	Teething . . .	61
Spina Bifida . . .	1	Vomiting of Blood . . .	1
Sprue, or Aphthæ . . .	18	Ulcers . . .	6
Still Born . . .	244	Unknown . . .	111
Sudden Death . . .	49	White Swelling . . .	5
Suicide . . .	14	Whooping Cough . . .	69
Syphilis . . .	15	Worms . . .	24
Carried over, . . .	4598	Total, . . .	5018

Of the abovementioned Deaths, there were,

Men . . .	1721
Boys . . .	1156
<i>Total Males,</i> . . .	2877
Women, . . .	1180
Girls, . . .	961
<i>Total Females,</i> . . .	2141
Total, . . .	5018

GEORGE CUMING, City Inspector.

STATEMENT OF DEATHS IN THE CITY AND LIBERTIES
OF PHILADELPHIA,

For the Year 1825,

SPECIFYING THE SEXES, AGES, AND DISEASES.

Deaths in each month.	Adults.	Children.	Total.	AGES.	
				Under 1 year,	1109
January, . . .	145	144	289	From 1 to 2	250
February, . . .	147	86	233	2 to 5	232
March, . . .	216	147	363	5 to 10	128
April, . . .	140	91	231	10 to 15	58
May, . . .	139	128	267	15 to 20	82
June, . . .	156	203	359	20 to 30	432
July, . . .	254	296	550	30 to 40	479
August, . . .	182	192	374	40 to 50	373
September, . . .	163	152	315	50 to 60	263
October, . . .	126	123	249	60 to 70	171
November, . . .	160	124	284	70 to 80	122
December, . . .	156	142	298	80 to 90	85
				90 to 100	24
				100 to 110	4
Totals, . . .	1984	1828	3812	Total, . . .	3812

The above mentioned Deaths were caused by the following Diseases and Casualties, viz:

Atrophy	29	Brought over,	2281
Abscess	12	Fever, Bilious Intermittent	2
Apoplexy	61	— Malignant Bilious Re-	
Asthma	21	mittent	1
Angina Pectoris	5	— Typhus	81
Aneurism	2	— Inflammatory	7
Anthrax	1	— Intermittent	13
Aphthæ	5	— Remittent	75
Burns	20	— Nervous	10
Bronchitis	14	— Hectic	4
Consumption	519	— Scarlet	9
Convulsions	237	— Puerperal	10
Casualties	19	Fracture	5
Catarrh	71	Found Dead	15
Cholera	209	Gout	3
Cancer	12	Gangrene	3
Colic	7	Gun-shot Wound	1
Colica Pictonum	4	Hives	75
Caries	2	Hooping Cough	40
Cynanche Maligna	2	Hysteritis	1
Childbed	4	Hæmorrhage	34
Concussion	2	Influenza	3
Contusion	4	Insanity	24
Coup de Soleil	4	Inflammation of the Lungs	124
Decay	30	— Liver	36
Debility	260	— Breast	13
Diarrhœa	66	— Brain	64
Dysentery	87	— Bowels	56
Drunkenness	31	— Bladder	5
Drinking cold water	25	— Peritoneum	9
Drowned	34	— Kidneys	3
Dyspepsia	7	— Knee Joint	1
Disease of the Heart	5	— Stomach	16
Dropsy	90	— Spleen	2
— in the Head	140	— Uterus	1
— of the Breast	40	Jaundice	10
Epilepsy	13	Locked Jaw	11
Erysipelas	12	Laudanum to excess	6
Eruptions	5	Measles	38
Extreme Heat	7	Mania a Potu	64
Fever	91	Murdered	1
— Bilious	62	Mortification	19
— Bilious Remittent	10	Obesity	1
Carried over,	2281	Carried over,	3177

Bills of Mortality.

421

Brought over, . . .	3177	Brought over, . . .	3335
Old Age	60	Spasms	11
Polypus	1	Scrofula	15
Poisoned	1	Spina Bifida	4
Perished for Want	1	Sudden	72
Prolapsus	1	Still Born	273
Palsy	42	Suicide	9
Pleurisy	8	Thrush	1
Rheumatism	5	Tumours	3
Strangury	2	Teething	15
Small Pox, (natural,)	6	Ulcers	5
Sore Throat	21	Worms	10
Scirrhus	7	Wounds	1
Stone	3	Unknown	58
<hr/>		<hr/>	
Carried over,	3335	Total,	3812

Of the above mentioned Deaths there were,

Males of 20 years and upwards	1119
Ditto, under 20 years	932
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	2051
Females of 20 years and upwards	855
Ditto, under 20 years	830
<hr/>	
	1685
Children principally under 1 year, whose sex is unknown	76
<hr/>	
Total,	3812

Of the foregoing Deaths, 346 died in the Alms-House, and 495 were People of Colour.

Agreeably to the Returns received at the Health Office from *one hundred and twenty-nine* Practitioners of Midwifery, there were born, in the City and Liberties of Philadelphia, from the first of January, to the thirty-first of December, 1825, both days inclusive,

Male Children	3444
Female Ditto	3182
<hr/>	
Making the Total Number of BIRTHS	6626
The whole Number of DEATHS was	3812
<hr/>	
Difference between the <i>Births</i> and <i>Deaths</i>	2814

By order of the Board of Health,

JOSEPH PRYOR, *Clerk.*

**STATEMENT OF DEATHS IN THE CITY OF BALTIMORE,
For the Year 1825.**

SPECIFYING THE SEXES, AGES, AND DISEASES.

Deaths in each month.	Males.	Females.	Total.	AGES.	
January, . . .	83	59	142	Under 1 year,	408
February, . . .	60	42	102	From 1 to 2	114
March, . . .	64	54	118	2 to 5	103
April, . . .	40	34	74	5 to 10	54
May, . . .	56	72	128	10 to 21	94
June, . . .	71	49	120	21 to 30	170
July, . . .	122	67	189	30 to 40	190
August . . .	123	84	207	40 to 50	139
September, . .	57	57	114	50 to 60	101
October, . . .	63	73	136	60 to 70	80
November, . .	54	61	115	70 to 80	58
December, . .	61	39	100	80 to 90	23
				90 to 100	9
Totals, . . .	854	691	1545	100 to 110	2
				Total, . . .	1545

The above mentioned Deaths were caused by the following Diseases and Casualties, viz:

Apoplexy . . .	17	Brought over, . .	781
Apthæ . . .	1	Fever, Scarlet . .	3
Asthma . . .	3	— Typhus . . .	50
Burns . . .	9	From Lightning . .	1
Cancer . . .	3	Gout in the Stomach .	1
Casualties . . .	12	Gravel . . .	1
Childbed . . .	22	Hæmorrhage . . .	3
Cholic . . .	3	Inflammation . . .	3
— Cramp . . .	12	— Brain . . .	10
— Bilious . . .	2	— Liver . . .	6
Cholera Infantum .	93	— Lungs . . .	2
Cholera Morbus . .	7	— Stomach . . .	2
Consumption . . .	295	— Throat . . .	1
Convulsions . . .	47	Infanticide . . .	1
Croup, or Hives . .	37	Intemperance . . .	21
Diarrhœa . . .	2	Jaundice . . .	2
Dropsy . . .	44	Liver Complaint . .	25
— in the Head . .	24	Locked Jaw . . .	3
Drinking cold water .	5	Mania . . .	3
Drowned . . .	26	Manslaughter . . .	2
Dysentery . . .	30	Marasmus . . .	35
Dyspepsia . . .	1	Measles . . .	9
Enteritis . . .	1	Mortification . . .	6
Fever, Bilious . . .	79	Murdered . . .	1
— Inflammatory . .	5	Old Age . . .	69
— Intermittent . .	1	Organic Disease of the Heart	2
Carried over, . . .	781	Carried over, . . .	1043

Brought over, . . .	1043	Brought over, . . .	1210
Palsy	11	Strangulated Hernia . . .	1
Phrenitis	1	Small Pox	3
Piles	1	Sudden	30
Pleurisy	25	Suffocation	1
— Bilious	2	Suicide	7
— Typhoid	1	Teething	14
Pneumonia	16	Thrush	7
Quinsy	7	Tumour	1
Rheumatism	2	Unknown Adults	34
Scald	1	— Infantile	216
Scirrhus of the Liver . . .	3	Whooping Cough	13
Scrofula	5	Worms	8
Still Born	92		
Carried over, . . .	1210	Total,	1545

Of the Deaths above enumerated, 389 were people of colour — of whom 332 were Free, and 57 Slaves.

The coloured population of this city, in 1820, according to the United States' Census, was 10,294 Free, and 4357 Slaves.

By order of the Board of Health,

DANIEL HARRIS, Secretary.

STATEMENT OF DEATHS IN THE CITY OF CHARLESTON,
(South Carolina,) *For the Year, 1825,*

SPECIFYING THE SEXES, AGES, AND DISEASES.

Deaths in each month.	Males.	Females.	Total.	AGES.	
January,	29	21	50	Under 3 years,	219
February,	31	22	53	From 3 to 10	52
March,	25	22	47	10 to 20	47
April,	29	26	55	20 to 30	117
May,	38	22	60	30 to 40	127
June,	63	32	95	40 to 50	85
July,	43	32	75	50 to 60	56
August,	70	34	104	60 to 70	68
September,	75	37	112	70 to 80	37
October,	62	27	89	80 to 90	19
November,	33	24	57	90 to 100	7
December,	28	15	43	100 to 110	6
Totals,	526	314	840	Total,	840

The above mentioned Deaths were caused by the following Diseases and Casualties, viz :

Accident	14	Brought over,	31
Angina Pectoris	1	Cancer	5
Apoplexy	9	Catarrh	14
Asthma	7	Childbed	9
Carried over,	31	Carried over,	59

Brought over, . . .	59	Brought over, . . .	616
Cholic . . .	4	Inflammation of the Bowels . . .	3
Cholera Morbus . . .	3	Insanity . . .	7
Consumption . . .	152	Intemperance . . .	17
Convulsions . . .	48	Jaundice . . .	3
Cramp . . .	4	Liver Complaint . . .	13
Croup . . .	16	Locked Jaw . . .	6
Debility . . .	34	Mænorragia . . .	1
Diarrhœa . . .	79	Old Age . . .	59
Dropsy . . .	87	Palsy . . .	6
Drowned . . .	5	Peripneumony . . .	1
Dysentery . . .	6	Pleurisy . . .	5
Dyspepsia . . .	3	Rheumatism . . .	1
Epilepsy . . .	1	Scrofula . . .	3
Fever . . .	6	Small Pox . . .	49
— Bilious . . .	21	Sore Throat . . .	3
— Catarrhal . . .	6	Spasms . . .	11
— Country . . .	28	Strangulated Hernia . . .	3
— Intermittent . . .	6	Sudden Death . . .	4
— Nervous . . .	15	Suffocation . . .	2
— Worm . . .	14	Suicide . . .	2
Gout . . .	1	Sun Struck . . .	2
Hooping Cough . . .	5	Swine Pox . . .	1
Hæmoptoe . . .	1	Teething . . .	13
Hæmorrhage . . .	6	Thrush . . .	5
Hæmorrhoids . . .	1	Varioloid . . .	3
Inflammation of the Brain . . .	5	Violence . . .	1
Carried over, . . .	616	Total, . . .	840

Of the above mentioned Deaths, there were—

White Males	228
Do. Females	125
Total Whites	353
Black Males	253
Do. Females	234
Total Blacks	487

Total Deaths 840

Of the Whites, there were,

Natives of this State	188
Different parts of the United States	74
Foreigners	91

Total, 353

By order of the Board of Health,

JAMES A. MILLER, Clerk.

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